

# OIKOS MARINE & SOUTH SIDE DEVELOPMENT



PRELIMINARY ENVIRONMENTAL INFORMATION REPORT  
VOLUME 2

Appendix 7.1: Preliminary Ecological Appraisal Report

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Prepared by: Waterman Infrastructure & Environment Limited



# **Oikos Marine & South Side Development**

## **Preliminary Ecological Appraisal Report**

March 2021

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## Quality Assurance – Approval Status

This document has been prepared and checked in accordance with  
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

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**Comments**

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## Disclaimer

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## 1. Introduction

- 1.1. Waterman Infrastructure & Environment Ltd (Waterman) were commissioned by Oikos Storage Ltd to carry out a Preliminary Ecological Appraisal (PEA) at land located at the existing Oikos facility (hereafter referred to as the 'Site'). The extent of the Site covered by this PEA report is shown on **Figure 1**.
- 1.2. This Preliminary Ecological Appraisal Report (PEAR) includes an ecological data search and an 'Extended' Phase 1 Habitat Survey; preliminary bat roost inspection of buildings (external and internal); Habitat Suitability Index (HSI) for great crested newt (GCN) *Triturus cristatus*; and survey for common invasive weeds.
- 1.3. As detailed within industry guidance (CIEEM, 2016)<sup>1</sup>, a PEA can be used to support an application provided that no 'Important Ecological Features' (IEFs) are identified, and no significant ecological effects are anticipated. If this is not the case, an Ecological Impact Assessment (EclA) is normally required. The OMSSD project has been confirmed as an EIA development and an EclA, shall be presented as an Ecology Chapter(s) within the EIA process.

### The Site

- 1.4. The Site (excluding the area covered by the Jetties) is approximately 26.8 hectares (ha) in area, centred on Ordnance Survey Grid Reference TQ 77641 82242 and is identified on **Figure 1**.
- 1.5. The Site currently comprises decommissioned and operational tanks, buildings, hardstanding / bare ground, scrub, waterbodies (ponds and ditches), ephemeral / short perennial habitat, tall ruderals and semi-improved grassland. Several jetties are also present to the south of the Site; however, these features have not been subject to survey due to safety and security issues.

### Development Proposals

- 1.6. Oikos Storage Ltd are proposing to undertake development (in the form of an NSIP) across the southern section of the existing Oikos facility. The NSIP (hereafter referred to as the 'OMSSD project') consists, in summary, of a deepening of the dredge pocket alongside one of the existing operational jetties (Jetty 2); the installation of additional marine infrastructure including pipelines and marine loading arms on both existing operational jetties (Jetty 1 and Jetty 2); additional liquid bulk storage tanks within various bunded compounds within the landside element of the Facility; and associated infrastructure such as pipelines, a new workshop, additional road loading facilities and parking areas.
- 1.7. It should also be noted that two ecological mitigation areas known as MA1 and MA2 (see below) that are currently located respectively to the east of the existing Compound 4 and to the east of the existing Compound 5 are also proposed to be re-located off-site. This is because it is now considered inappropriate to have such areas on an active site that stores and handles fuel and associated products. This will however, in turn, offer species and habitats much greater connectivity with surrounding landscapes and areas. Whilst the re-location of these areas would look to be undertaken as part of a separate application (subsequently referred to in this document

<sup>1</sup> CIEEM (2016). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

as a 'Section 73 application'), Oikos has recognised that it may not be possible to secure the necessary consents and approvals for the relocation of these two mitigation areas before the submission of the OMMSD application. For that reason, Oikos has adopted a twofold strategy in order to provide certainty as to its ability to deliver the OMMSD scheme and whilst the relocation of these two areas will continue to be pursued under the provisions of the Town and Country Planning Act 1990, the OMMSD scheme will also be promoted as incorporating the relocation of the mitigation areas and the OMMSD application will be updated as appropriate.

- 1.8. Whilst MA1 would not be subject to development, it shall be subject to regular management for operational and safety purposes and will therefore retain some ecological functionality. MA2 (with the exception of Pond P3, **Figure 1**) is proposed to be reduced to bare ground in advance of the OMSSD project coming forward through the Section 73 application and would then be subject to development when the OMSSD project is brought forward. Pond P3 and the bare ground would, therefore, only be lost as part of the OMSSD project.

### **Previous Assessments**

- 1.9. Areas of the Oikos facility have been subject to a previous planning application (ref: 16/0106/FUL) relating to a Deep Water Jetty project at the Facility and storage tank improvements. A series of ecological assessments were undertaken in 2015 to support this application by Thomson Ecology and Waterman.
- 1.10. As part of the previous planning application, two ecological mitigation areas (MA1 and MA2) were created to mitigate the detrimental impacts caused due to habitat loss on notable invertebrate and common species of reptile populations. A reptile translocation exercise also took place in 2016 as part of the on-site mitigation, which involved re-locating reptiles present within the development area into MA1 and MA2. The locations of MA1 and MA2 are shown on **Figure 1**.

## 2. Methodologies

### Scope of the Assessment

- 2.1. This section summarises the methodologies used for undertaking the PEA based on current guidelines<sup>2,3</sup>. The Zone of Influence (Zol) is the area(s) over which ecological features maybe impacted by the biophysical changes caused by the proposed Development. The Zol has been determined through a review of baseline conditions, results of the ecological data search, consideration of the wider local environment, and consideration of the type of development proposed. Given the nature of ecological features the Zol is different for different ecological features. For example, the potential for significant effects in relation to protected and notable species and non-statutory and nationally designated sites is considered to be largely limited to the immediate and local environs. However, European sites designated for nature conservation reasons are present with the locality of the Oikos facility, and a wider area of consideration has been adopted for these. The study area / Zol for different ecological features is set out within Table 1 below.

Table 1: Zol for ecological features

Ecological Feature	Zol
International nature conservation designations (Natura 2000 sites – Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar)	5km
National nature conservation designations (Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs))	5km
Local Nature Reserves (LNR)	2km
Non-statutory nature conservation designations (LWS)	2km
Protected and notable species	2km
Habitats of Principal Importance (HoPI) (e.g. ponds, lowland mixed deciduous woodland, lowland meadow)	500m

- 2.2. The 'Extended' Phase 1 Habitat survey area comprised primarily the Site itself i.e. the Oikos facility, plus adjacent land viewed where possible from the Site. Aerial photography for the local area has also been reviewed.
- 2.3. As referenced in industry guidance (CIEEM, 2016), IEFs that are anticipated to be affected by the OMSSD project and Section 73 Application have been identified and subject to preliminary assessment. In this report, designated sites, habitats and species that fall into the categories in **Table 2** and **Table 3** have been identified as having the potential for being ecologically important and/or legally protected/controlled and form the scope of data gathering during the ecological data search and Site survey.

<sup>2</sup> Chartered Institute of Ecology and Environmental Management (2018). *Guidelines for Preliminary Ecological Assessment*. Technical Guidance Series.

<sup>3</sup> BSI (2013) BS 42020:2013. Biodiversity - Code of Practice for Planning and Development.

Table 2: Geographical Scale of Important Ecological Feature Categories

Geographical Level of Importance	Category
International	Statutory designated sites: Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites (including candidate SACs and proposed SACs, SPAs and Ramsar sites)
National	Statutory designated sites: Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) <sup>4</sup> ; Ancient Woodland; Habitats and species of principal importance for the conservation of biodiversity as listed on Schedule 41 of the NERC Act, 2006 <sup>5</sup> , including ecologically important hedgerows under the Hedgerow Regulations; and Red List (using IUNC criteria <sup>6</sup> ) and nationally rare or scarce species and Birds of Conservation Concern (Red List <sup>7</sup> )
County	Local Nature Reserves (LNR), non-statutory Local Wildlife Sites and Local Biodiversity Action Plan (LBAP) habitats and species.

Table 3: Legally Protected Habitats and Species

Legislation (Summarised in Appendix A)
Species included on Schedules II and V of The Conservation of Habitat and Species Amendment (EU Exit) Regulations 2019 <sup>8</sup> ;
Species included on Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) <sup>9</sup> , excluding species that are only protected in relation to their sale (Section 9[5] and 13[2]); and
Badgers, which are protected under the Protection of Badgers Act 1992 <sup>10</sup> .

Information with regard to badger is confidential.

## Ecological Data Search

- 2.4. The aim of the ecological data search is to collate existing records for the Site and adjacent areas. Obtaining existing records is an important part of the evaluation process, as it provides additional information that may not be apparent during a site survey.
- 2.5. An ecological data search was requested in October 2018 and updated in May 2020, during which all records of protected species, and/or other notable fauna and flora within 2km of the Site were requested from the Essex Wildlife Trust (EWT) and the Essex Field Club (EFC). Those most recent records (i.e. from the 2020 data search) have been presented within this PEAR where relevant.
- 2.6. Records of important statutory and non-statutory sites designated as referred to in **Table 2** for their nature conservation value within 2km of the Site were also requested from EWT and EFC, with an

<sup>4</sup> DCLG (2012). *National Planning Policy Framework*, paragraph 118.

<sup>5</sup> ODPM (2006) 'Natural Environment and Rural Communities Act (2006)'

<sup>6</sup> <http://www.iucnredlist.org/technical-documents/categories-and-criteria>

<sup>7</sup> [https://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-guide/status\\_explained.aspx](https://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-guide/status_explained.aspx)

<sup>8</sup> HMSO (2017) The Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019

<sup>9</sup> HMSO (1981) 'Wildlife and Countryside Act 1981 (as amended)'

<sup>10</sup> ODPM (1992) 'The Protection of Badgers Act'

increased radius of up to 5km searched for on the Multi-Agency Geographic Information for the Countryside (MAGIC)<sup>11</sup>.

- 2.7. In addition, Habitats of Principal Importance (HoPI) and Species of Principal Importance (SoPI) listed under Section 41 (S41) of the NERC Act, as well as Habitat Action Plans (HAPs) and Species Action Plans (SAPs) listed under the Essex Biodiversity Action Plan (LBAP) were consulted to assign an ecological context to the Site.

### **‘Extended’ Phase 1 Habitat Survey**

- 2.8. The most recent ‘Extended’ Phase 1 Habitat Survey of the Site was undertaken on 3<sup>rd</sup> March 2020 using the Joint Nature Conservancy Council (JNCC, 2010)<sup>12</sup> standard ‘Phase 1’ survey technique. The Phase 1 Habitat Survey methodology was ‘Extended’ by undertaking an assessment of the Site to support protected and notable faunal species. All habitat types within the Site were mapped (**Figure 1**) with target notes where appropriate. The survey of the Site was conducted under conditions deemed appropriate for survey, being dry, sunny and warm. It should be noted that a previous ‘Extended’ Phase 1 Habitat Survey, which predominantly covered the southern portion of the Site, was undertaken on 13<sup>th</sup> September 2018. The purpose of the 2020 ‘Extended’ Phase 1 Habitat Survey was to update the findings of the 2018 survey as well as incorporate additional areas of the Oikos facility not surveyed previously.
- 2.9. Where access allowed, adjacent habitats were also considered to assess the Site within the wider landscape, and to provide information with which to assess possible impacts of the proposed Development.

### **Common Invasive Plant Species Assessment**

- 2.10. The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The ‘Extended’ Phase 1 Habitat Survey checked for the presence of common invasive species including Japanese knotweed *Reynoutria japonica*, giant knotweed *Fallopia sachalinensis*, hybrid knotweed *Fallopia baldschuanica*, giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera*.

### **Preliminary Roost Assessment**

- 2.11. As part of the preliminary roost assessment an external inspection of those buildings present on Site (where access was provided – see limitations section) for their suitability to support roosting bats was undertaken on 3<sup>rd</sup> March 2020, in conjunction with the ‘Extended’ Phase 1 Habitat Survey’. It should be noted that an external inspection of buildings/structures was also undertaken as part of the previous 2018 ‘Extended’ Phase 1 Habitat Survey’. No trees are present on Site and therefore a preliminary roost assessment for trees was not undertaken.

<sup>11</sup> Magic.defra.gov.uk. (2014). *Magic*. [online] Available at: <http://magic.defra.gov.uk/> [Accessed October 2018].

<sup>12</sup> JNCC. (2010). *Handbook for Phase 1 Habitat Survey*. Nature Conservancy Council

- 2.12. The surveys were based on current best practice guidelines (Collins, 2016)<sup>13</sup>. An assessment of each building was made in terms of its suitability to support roosting bats. The survey consisted of a visual inspection (including the use of binoculars) of the exterior of the building/structure for evidence of bat use (e.g. droppings, scratch marks, staining and sightings).
- 2.13. Following the above 2018 external inspection, an internal inspection of buildings B3, B7, B9 and B12 (**Figure 1**) was undertaken on 16<sup>th</sup> May 2019, again to look for evidence of bat use (e.g. droppings, scratch marks, staining and sightings). This was undertaken as these buildings were assessed to be of low bat potential as a result of the 2018 external inspections. The survey was undertaken by an experienced ecologist who holds a Natural England Class Level 4 Licence for all bat species and counties of England.

Table 4: Adapted Building Assessment Guidelines for Determining Bat Roosting Suitability

Assigned Bat Roosting Potential	Description
Known or confirmed roost	Evidence of roosting bats within the building/structure.
High	A building/structure with one or more Potential Roost Features (PRFs) that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A building/structure with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).
Low	A building/structure with one or more PRF that could be used by individual bats opportunistically. However, these PRFs do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Negligible	Negligible features suitable for roosting and unlikely to be used by roosting bats.

- 2.14. Several factors for determining the requirement for further evening emergence and dawn re-entry surveys were also considered, including internal conditions; proximity to foraging habitats or cover; and potential for disturbance, such as high levels of night lighting, and Site context.

### Habitat Suitability Index

- 2.15. An indication of the suitability of water bodies on Site to support GCN was made using Habitat Suitability Index scores (HSI)<sup>14</sup>. A score was obtained for each waterbody ranging between 0 – 1; with 0 indicating unsuitable habitat and 1 indicating optimal habitat.

<sup>13</sup> Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

<sup>14</sup> Amphibian and Reptile Groups of the United Kingdom. (2010). ARG UK Advice Note 5 – Great Crested Newt Habitat Suitability Index.

## IEF Assessment

- 2.16. Data gathered as part of this PEA has been used to identify potential IEFs (i.e. designated sites, habitats and species as listed in **Tables 2 and 3**) that are anticipated to be affected by the OMSSD project within their respective Zol (**Table 1**).
- 2.17. However, not all the IEFs within the Zol have the potential to be significantly affected by the OMSSD project, or the legislation pertaining to them to be contravened. Therefore, where features are unlikely to be affected by the OMSSD project, or where any effects that impact IEFs are unlikely to be significant, for the reasons<sup>15</sup> listed below, such features have been scoped out of the assessment:
- No pathway of effect has been identified, for example the feature is sufficient distance from the Site or there is the presence of a barrier between its location and the Site<sup>16</sup>; or
  - The feature is of insufficient biodiversity conservation value within the Zol, due to its quality, extent or population size<sup>17</sup>.
- 2.18. For all remaining features scoped into the assessment, the pathway of effect (e.g. habitat loss, lighting, noise etc.) and potential impact of this on the feature have been identified.

## Constraints and Limitations

- 2.19. Whilst the 2020 'Extended' Phase 1 Habitat Survey was undertaken outside of the recognised optimum survey period (April – September), given that a previous 'Extended' Phase 1 Habitat Survey was undertaken in September 2018 and those areas not surveyed at this time comprised predominantly bare ground, hardstanding and storage tank structures, this is not considered to be a significant limitation to the findings of this PEA.
- 2.20. Due to health and safety considerations the jetties at the Oikos facility were not subject to survey. Given the operational nature of the jetties, however, and consequential operational disturbance this limitation is not considered to be significant.
- 2.21. Following the undertaking of the 2018 and 2020 external building inspections for bats, and the 2019 internal building inspection, those buildings and structures present on Site were assessed to be of negligible suitability for supporting roosting bats and consequently no update internal building inspections are considered to be required.

<sup>15</sup> Positive or negative effects on ecological features that have the potential to influence a planning decision are considered to be significant

<sup>16</sup> Whilst the Zol of potential effects arising from the development is up to 2km from the Site, the ecological Zol (within which the feature could be affected) for each feature may vary and for some features may be much less, e.g. great crested newts generally move up to a maximum of 500m from a breeding pond and movement can be restricted by barriers such as busy roads and fast flowing rivers

<sup>17</sup> E.g. whilst a Priority Species such as skylark *Alauda arvensis* or house sparrow *Passer domesticus* is of National importance (**Table 2**), the impact of development on individual or a small population of such a species, which are generally commonly found, is unlikely to be assessed as significant

### 3. Results

#### Ecological Data Search

##### Statutory Sites

- 3.1. The Site is not located within or directly adjacent to any statutory designated sites. However, two international (SPA / Ramsar) designated sites and nine national (SSSI / NNR) designated sites are located within 5km, several of which have overlapping designations / boundaries. These sites are described in **Table 5** below. It should be noted that the distances provided within **Table 5** are the nearest approximate distance from the Oikos facility boundary to the boundary of the respective designated site.

Table 5: Summary of Statutory Designated Sites within 5km of the Site

Site Name	Designation	Nearest approximate distance and direction from Oikos facility	Description
Holehaven Creek	SSSI	0.10km north west (from Jetty 1)	Holehaven Creek comprises intertidal mudflats and saltmarsh habitats regularly supporting nationally important numbers of wintering black-tailed godwit <i>Limosa limosa islandica</i> . The site is linked geographically and functionally with the wider Thames Estuary.
Canvey Wick	SSSI	0.76km north-west (from western Oikos facility boundary)	Canvey Wick supports a nationally important assemblage of invertebrates, associated with herb-rich grassland, early successional habitat and scrub edge and brackish habitats. Additionally, it supports a nationally important population of the shrill carder bee <i>Bombus sylvarum</i> .
Thames Estuary & Marshes	SPA / Ramsar	1.26km south (from Jetty 2)	<p>The Thames Estuary and Marshes SSSI/SPA includes both marine and terrestrial habitats. The marshes extend for around 15km along the south side of the estuary, and also include some intertidal areas found on the north bank. It encompasses brackish, floodplain grazing marsh ditches and saline lagoons as well as intertidal saltmarsh and mudflat.</p> <p>The Thames Estuary and Marshes SPA qualifies under Article 4.1 of the EU Birds Directive<sup>18</sup> as it supports internationally important populations of the regularly occurring Annex 1 species avocet <i>Recurvirostra avosetta</i> and hen harrier <i>Circus cyaneus</i>. This Site also</p>

<sup>18</sup> Implemented by the Wildlife and Countryside Act 1981 as amended by the Animal Health, Invasive Alien Species, Plant Breeders' Rights and Seeds (Amendment etc.) (EU Exit) Regulations

Site Name	Designation	Nearest approximate distance and direction from Oikos facility	Description
			<p>qualifies as an SPA under Article 4.2 of the EU Birds Directive as it supports internationally important populations of regularly occurring migratory species including ringed plover <i>Charadrius hiaticula</i>, grey plover <i>Pluvialis squatarola</i>, dunlin <i>Calidris alpina</i>, knot <i>Calidris canutus</i>, black-tailed godwit <i>Limosa limosa islandica</i> and redshank <i>Tringa totanus</i>. This SPA site also supports an internationally important assemblage of waterfowl as stated in Section 4.2 of the Directive, which include gadwall, shoveler, tufted duck, and pochard.</p> <p>The Thames Estuary and Marshes Ramsar site qualifies under Criterion 2 as it supports 1 nationally rare and 14 nationally scarce plant species, as well as 1 endangered, 10 vulnerable and 12 rare invertebrate species. It also qualifies under Criterion 5 for its internationally important assemblage of waterfowl, and Criterion 6 for its internationally important numbers of over-wintering waterfowl.</p> <p>Conservation objectives for this site are as follows: Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the EU Birds Directive, by maintaining or restoring:</p> <ul style="list-style-type: none"> <li>• The extent and distribution of the habitats of the qualifying features;</li> <li>• The structure and function of the habitats of the qualifying features;</li> <li>• The supporting processes on which the habitats of the qualifying features rely;</li> <li>• The population of each of the qualifying features; and</li> <li>• The distribution of the qualifying features within the site.</li> </ul>
South Thames Estuary & Marshes	SSSI	1.26km south (from Jetty 2)	The South Thames Estuary and Marshes SSSI is a component feature of the Thames Estuary & Marshes SPA / Ramsar.
Canvey Lake	LNR	1.83km north east (from north eastern Oikos facility boundary)	Canvey Lake is a former creek cut off by a seawall. It was renovated in 2013. This site supports a population of water vole.
Benfleet and	SSSI / SPA / Ramsar	2.95km north-east (from north eastern	The Benfleet and Southend Marshes comprises a series of saltmarsh, mudflat and grassland habitats located on the north bank of the Thames Estuary.

Site Name	Designation	Nearest approximate distance and direction from Oikos facility	Description
Southend Marshes		Oikos facility boundary)	<p>The Benfleet and Southend Marshes site qualifies under Article 4.2 of the EU Birds Directive as a designated SPA as it supports internationally important populations of regularly occurring migratory species. This includes Dark-bellied brent geese <i>Branta bernicla bernicla</i>, knot, and grey plover. This area also supports internationally important assemblages of waterfowl also covered under Article 4.2 of the Directive.</p> <p>The Benfleet and Southend Marshes Ramsar site qualified under Ramsar Criterion 5 as it supports assemblages of internationally important waterfowl. It is also notified under Criterion 6 as species occurring at internationally important levels are recorded within the area.</p> <p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the EU Birds Directive, by maintaining or restoring:</p> <ul style="list-style-type: none"> <li>• The extent and distribution of the habitats of the qualifying features;</li> <li>• The structure and function of the habitats of the qualifying features;</li> <li>• The supporting processes on which the habitats of the qualifying features rely;</li> <li>• The population of each of the qualifying features; and</li> <li>• The distribution of the qualifying features within the site.</li> </ul>
Vange and Fobbing Marshes	SSSI	3.79km north-west	Vange & Fobbing Marshes lie on the alluvial plain of the lower River Thames. The unimproved coastal grassland and associated dykes and creeks support a diversity of maritime grasses and herbs. Many of these species are nationally uncommon or rare, and together form an outstanding assemblage of plants.
Leigh	NNR	4.85km north-east (from north eastern Oikos facility boundary)	The Leigh NNR is encompassed by the Benfleet and Southend Marshes SSSI boundary. The NNR encompasses Leigh Sands (an intertidal area) as far south as a channel called Ray Gut, and also included the eastern half of Two Tree Island. The island is the only part of the reserve that is accessible. The flats at Leigh NNR support a wide variety of birds, particularly migratory species.

Site Name	Designation	Nearest approximate distance and direction from Oikos facility	Description
Pitsea Marsh SSSI	SSSI	4.93km north-west (from north western Oikos facility boundary)	Pitsea Marsh SSSI comprises a mosaic of habitats, including scrub, grassland, reedbed and fen, open water and saltmarsh. Geologically, the site is split into two. The grazing marsh dykes and reedbed lie on alluvial deposits, whilst the scrub, grassland and ponds are found primarily on London Clay. The reedbed in Pitseahall Fleet is the largest known in South Essex. The diversity of habitats supports an outstanding range of invertebrates, including a number of local and nationally rare damselflies, dragonflies, moths, flies and beetles.
Northward Hill / High Halstow (covered by the same boundary)	SSSI / NNR	4.99km south (from Jetty 2)	The most important feature of the site is the heronry which at over 200 the pairs is the largest in Britain. There is a diverse breeding bird community, and the insect fauna is also of interest particularly moths and butterflies. The site consists of mixed deciduous woodland and scrub with some open areas of grassland and bracken. A number of small ponds are present and also a few open ditches.

### Non-Statutory Sites

- 3.2. The Site is not located within any non-statutory designated sites. However, Brick House Farm Marsh Local Wildlife Site (LWS) is located north of the Site and Canvey Village Marsh LWS is located to the west of the Site, on the opposite side of Haven Road. Three other non-statutory designated sites are located within 2km of the Site. Those non-statutory designated sites returned from the ecological data search are provided within **Table 6** below. It should be noted that the distances provided within **Table 6** are the nearest approximate distance from the Oikos facility boundary to the boundary of the respective designated site.
- 3.3. It should also be noted that as part of their Local Plan review, Castle Point Borough Council are intending to increase the size of Brick House Farm Marsh LWS, by extending its boundary to the east and removing an area to the south.

Table 6: Summary of Non-statutory Designated Sites within 2km of the Site

Site Name	Designation	Nearest approximate distance and direction from Oikos facility	Description
Canvey Village Marsh	LWS	0.01km west (from the western Oikos facility,	This site consists of the remains of an old grazing marsh system, representing a scarce and declining Essex habitat, of which Canvey Island supports a significant amount. The fields that make up the site

Site Name	Designation	Nearest approximate distance and direction from Oikos facility	Description
		located on the opposite side of Haven Road)	<p>are variously cattle- or horse-grazed, cut for hay or under no current management, each of these resulting in grasslands of different character. Although of considerable significance in its own right, this site also provides an extension to the adjacent Canvey Wick SSSI and links it to Brickhouse Farm Marsh LWS to the east. This is particularly important for the maintenance of invertebrate populations at a landscape scale.</p> <p>Management of the areas outside of the RSPB's control is of variable quality from a nature conservation point of view, with more intensive grassland management and the risk of arable cultivation.</p>
Brick House Farm Marsh	LWS	0.04km north (from the northern Oikos facility boundary)	<p>This site is said to represent a surviving area of the coastal grazing marsh habitat that would have once covered Canvey Island. Although managed agriculturally, some of the fields retain elements of their original topography, with seasonally wet low ways, which become fleets in wet years.</p> <p>Current management is not being carried out for conservation purposes. Site condition is likely to have been better in 2012 when originally considered due to the consistent wet weather.</p> <p>It should be noted that the LWS is not shown as coastal floodplain grazing marsh on the MAGIC habitat inventory.</p>
West Canvey Marshes	LWS	0.99km north west (from north western Oikos facility boundary)	<p>West Canvey Marshes is a very extensive area of grazing-marsh, ditches, scattered scrub and inter-tidal habitats.</p>
Thorneycreek Fleet	LWS	1km north east (from north eastern Oikos facility boundary)	<p>This Site largely consists of a wet reedbed, with associated marginal grassland and scrub. It is derived from one of the original main fleets draining Canvey Island prior to its reclamation.</p>
Northwick Farm and Sea Wall	LWS	0.76km north-west (from western Oikos facility boundary)	<p>This Site is made up of a former landfill site at Northwick Farm and the adjacent sea wall, which runs alongside the Canvey Wick SSSI. It forms part of a complex of important conservation sites covering most of West Canvey, with links to others in Basildon District and Thurrock.</p>

## S41 Habitats and Protected, BAP and Other Notable Species

- 3.4. Records of legally protected or otherwise notable species of flora and fauna within 2km of the Site were provided by EWT and EFC in 2020. A summary of the most significant results of relevance to the Site are provided in **Table 7** below. Full results can be obtained from the data providers but cannot be presented in this report due to copyright issues. For some records a distance but only a four-figure grid reference has been provided and therefore 'no full grid reference provided' has been stated in **Table 7**. It should be noted that the distances provided in **Table 7** below are taken from the central grid reference of the Site and therefore are approximate. A summary of those UK BAP / S41 Habitats (as shown on the MAGIC Habitat Inventory) occurring within 500m of the Oikos facility is also provided within **Table 7**.

Table 7: Summary of Records of Protected and Notable Flora and Fauna within 2km of the Site

Species	Category of Importance*	Number of Records (EWT & EFC Combined)	Date Range of Records	Nearest approximate distance and direction from Oikos facility
<b>UK BAP / S41 Habitats</b>				
Ancient Woodland	Irreplaceable, HoPI, LBAP	None	N/A	No ancient woodland occurs within 2km of the Oikos facility.
Deciduous Woodland				0.23km north
Coastal & Floodplain Grazing Marsh				No coastal and floodplain grazing marsh occurs within 500m of the Oikos facility as shown on the MAGIC Habitat Inventory (nearest record is 1km north west)
Mudflats	HoPI, LBAP (Coastal Grazing Marsh)	N/A	N/A	0.03km south
Intertidal Substrate Foreshore				0.03km south
Coastal Saltmarsh;				1.27km west
Open Mosaic Habitat (draft)				0.55km north-west

Species	Category of Importance*	Number of Records (EWT & EFC Combined)	Date Range of Records	Nearest approximate distance and direction from Oikos facility
<b>Amphibians</b>				
Great crested newt <i>Triturus cristatus</i>	Hab regs, WCA, SoPI and LBAP	60	1986 – 2019	0.04km west (within Canvey Village Marsh)
Smooth newt <i>Lissotriton vulgaris</i>	N/A	24	2005 - 2018	0.04km west (within Canvey Village Marsh)
<b>Bats</b>				
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Hab regs, WCA	5	2004 - 2011	0.86km north east
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	Hab regs, WCA	1	2007	1.73km north east
<b>Birds</b>				
Cuckoo <i>Cuculus canorus</i>	SoPI	13	2012	0.6km (no full grid reference provided)
Cetti's warbler <i>Cettia cetti</i>	WCA	12	2014	0.7km (no full grid reference provided)
Marsh harrier <i>Circus aeruginosus</i>	WCA	14	2017	1.4km (no full grid reference provided)
Hen harrier <i>Circus cyaneus</i>	WCA	1	2017	1.4km (no full grid reference provided)
Peregrine <i>Falco peregrinus</i>	WCA	9	2017	1km (no full grid reference provided)
Hobby <i>Falco subbuteo</i>	WCA	9	2016	0.7km (no full grid reference provided)
Red kite <i>Milvus milvus</i>	WCA	2	2015	1.4km (no full grid reference provided)
<b>Dormouse</b>	No records were provided by EWT or EFC			
<b>Invertebrates*</b>				

Species	Category of Importance*	Number of Records (EWT & EFC Combined)	Date Range of Records	Nearest approximate distance and direction from Oikos facility
Wall butterfly <i>Lasiommata megera</i>	SoPI	202	2005 - 2016	0.22km west
Small heath <i>Coenonympha pamphilus</i>	SoPI	133	1993 - 2019	0.32km west
Saltmarsh short-spur <i>Anisodactylus poeciloides</i>	SoPI	7	1950 - 2012	0.45km west
Shrill carder bee <i>Bombus sylvarum</i>	SoPI, LBAP	29	2002 - 2019	0.22km west
Brown-banded carder-bee <i>Bombus humilis</i>	SoPI	33	2012	0.22km west
Sea aster bee <i>Colletes halophilus</i>	SoPI	2	2006 - 2012	0.4km west
Shaded broad-bar <i>Scotopteryx chenopodiata</i>	SoPI	12	2003 - 2019	0.9km (no full grid reference provided)
Latticed heath <i>Chiasmia clathrata</i>	SoPI	1	1940 - 2019	0.9km (no full grid reference provided)
Scarce emerald damselfly <i>Lestes dryas</i>	Red list	15	2000 - 2017	0.3km west
<b>Reptiles</b>				
Common lizard <i>Zootoca vivipara</i>	SoPI	191	2001 - 2019	0.04km west
Adder <i>Vipera berus</i>	SoPI	15	2001 - 2019	0.40km west
Slow worm <i>Anguis fragilis</i>	SoPI	7	2012 - 2019	0.40km west
Grass snake <i>Natrix natrix</i>	SoPI	16	2005 - 2019	0.04km west
<b>European water vole</b> <i>Arvicola amphibius</i>	WCA, SoPI, LBAP	10	2012 - 2015	0.40km west
<b>Flora</b>				

Species	Category of Importance*	Number of Records (EWT & EFC Combined)	Date Range of Records	Nearest approximate distance and direction from Oikos facility
Sea barley <i>Hordeum marinum</i>	SoPI	1	2012	0.40km west
Slender hare's-ear <i>Bupleurum tenuissimum</i>	SoPI	2	2012	0.4km west
Golden-samphire <i>Inula crithmoides</i>	SoPI	2	2012-2014	0.4km west
Sea Clover <i>Trifolium squamosum</i>	N/A	4	2006 - 2012	0.15km north
Curved Hard-grass <i>Parapholis incurva</i>	N/A	2	2006 - 2012	0.4km west
Golden-samphire <i>Inula crithmoides</i>	N/A	2	2012 - 2014	0.4km west
Annual Beard-grass <i>Polypogon monspeliensis</i>	N/A	2	2009 - 2015	2.2km (no full grid reference provided)
Glaucous Glasswort <i>Salicornia obscura</i>	N/A	2	2006	2km (no full grid reference provided)
<b>Invasive Species</b>	No species listed on Schedule 9 of WCA were provided by EWT or EFC			

\*Numerous records (including for invertebrates) were returned, full details of which can be provided upon request and following permission from copyright holder.

Hab Regs - Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019

WCA - The Wildlife and Countryside Act 1981 (as amended)

SoPI – Species of Principal Importance under The Natural Environment and Rural Communities Act 2006

LBAP – Essex Biodiversity Action Plan

## 'Extended' Phase 1 Habitat Survey

### Habitats

3.5. The following habitat types, described in more detail below, were identified on and adjacent to the Site during the 2020 'Extended' Phase 1 Habitat Survey:

- Bare ground;
- Hardstanding;
- Buildings / Structures;

- Ephemeral / short perennial;
  - Tall ruderal;
  - Scrub;
  - Semi-improved grassland;
  - Waterbodies;
  - Running water; and
  - Intertidal mudflats.
- 3.6. The above habitats are considered not to have changed to a significant extent from the findings of the 2018 'Extended' Phase 1 Habitat Survey, with the predominant changes largely comprising very gradual succession of areas of bare ground to ephemeral vegetation and the establishment of further areas of semi-improved grassland.
- 3.7. The habitat descriptions given below should be read in conjunction with **Figure 1** which includes target notes and the photographs (Plates) presented in **Appendix D**.

#### Bare ground and Hardstanding

- 3.8. The Site consists predominantly of hard standing, in the form of pavements and tarmac roads (**Plate 1**), and bare ground (gravel), largely surrounding the existing storage tanks. Areas of bare ground are also present as a result of on-going operational works (**Plate 2**).

#### Buildings

- 3.9. A total of 17 buildings of various construction types are present on the Oikos facility. A summary of their suitability to support roosting bats is provided below (see 'Protected and Notable Fauna' section that follows), with more detailed information provided within **Appendix B**.

#### Ephemeral / Short perennial

- 3.10. Ephemeral / short perennial habitat dominated by bristly ox-tongue *Helminthotheca echioides* is scattered throughout the Site (**Plate 3**). A large proportion of this has become established from bare ground resulting from previous Site clearance works associated with the removal of storage tanks within the south-west of the Site.
- 3.11. The following species were also recorded: soft brome *Bromus hordeaceus*; common daisy *Bellis perennis*; cocks-foot *Dactylis glomerata*; dandelion *Taraxacum spp.*; white clover *Trifolium repens* and Canadian fleabane *Erigeron canadensis*.
- 3.12. Some small areas formed ephemeral shingle **Figure 1**, Target Note 4, where bird's foot trefoil *Lotus corniculatus* occurred.

#### Tall ruderal

- 3.13. A number of patches of tall ruderal vegetation occur across the Site, sometimes interspersed with industrial pipes and tanks.
- 3.14. Small patches of ruderal habitat were recorded to the south-west (**Plate 3**) and central parts of the Site. The following species were recorded within such areas: redshank *Persicaria maculosa*; yarrow *Achillea millefolium*; goosefoot species *Chenopodium spp.*; broad-leaved dock *Rumex obtusifolius*; wild carrot *Daucus carota*; common toadflax *Linaria vulgaris*; ragwort *Jacobaea*

*vulgaris*; cocks-foot; Canadian fleabane; bristly ox-tongue; common teasel *Dipsacus fullonum*; creeping thistle *Cirsium arvense*; and spear thistle *Cirsium vulgare*.

- 3.15. Several areas within the central southern areas of the Site were dominated by common reed *Phragmites australis*, which is subject to regular management (**Plate 4**). Common reed is also present to the south-west of MA1, associated with Ditch D1 (**Plate 5**), as well as small areas within MA1 itself.
- 3.16. MA2 supports a diverse ruderal habitat mixed with semi-improved grassland. Species recorded include tufted vetch *Vicia cracca*; white melilot *Melilotus albus*; corn marigold *Glebionis segetum*, bird-foot trefoil; mugwort species *Artemisia spp.*; scented mayweed *Matricaria chamomilla*; oilseed rape *Brassica napus*; ribwort plantain *Plantago lanceolata* and greater plantain *Plantago major* (**Plate 6**).

#### Scattered scrub

- 3.17. Areas of scattered scrub were recorded across this Site, including within MA2 (**Plate 7**), to the north and eastern edges of waterbody P2, including along the eastern Site boundary, and within the centre and north of the Site. The scrub is largely dominated by bramble *Rubus fruticosus* and buddleia *Buddleia davidii*, with species such as hawthorn *Crataegus monogyna* also present.

#### Semi-improved grassland

- 3.18. Regularly managed/cut (to c.50-100mm and as part of routine operational management works) species poor semi-improved grassland is present within the centre, south and south-east of the Site (**Plates 8 and 9**). Species recorded include cocks-foot; dandelion; perennial ryegrass *Lolium perenne*; Yorkshire fog *Holcus lanatus*; ribwort plantain; greater plantain; broad-leaved dock *Rumex obtusifolius*; meadow grass species *Poa sp.*; creeping cinquefoil *Potentilla reptans*; dandelion; daisy; barren brome *Bromus sterilis*; and other brome *Bromus* species. The grassland is also interspersed with ephemeral / short perennial and ruderal vegetation as described above.
- 3.19. MA2 supports a mix of coarse semi-improved grassland, comprising the above species and subject to an annual management regime, with other habitats, including tall ruderals, ephemerals and scrub vegetation being present, including those species listed within paragraph 3.16 above.

#### Waterbodies

- 3.20. A total of six waterbodies were recorded on Site, comprising three man-made ponds (**Figure 1**, P1; P2; and P3) and three ditches (**Figure 1**, D1, D2 and D3). Two of the ponds (P1 and P2) store fire water for the Site.
- 3.21. Waterbody P1 (**Plate 10**), is located to the north of Building B8 and is approximately 1,000m<sup>2</sup> in area. It is surrounded with emergent fringe vegetation comprising sea club-rush *Bolboschoenus maritimus*. Beyond this the pond is surrounded by hardstanding, ephemeral / short perennial vegetation and some small areas of semi-improved grassland. The pond has little to no suitable connectivity to other waterbodies on and beyond the Oikos facility. Algae blooms were recorded within the waterbody during the 2018 'Extended' Phase 1 Habitat Survey and there was an absence of submerged vegetation.
- 3.22. Waterbody P2 (**Plate 11**) is located to the south of MA2 and is approximately 3,600m<sup>2</sup> in area. Surrounding habitat comprises scrub, ephemeral / short perennial vegetation and semi-improved grassland and emergent fringe vegetation comprising sea club-rush as described above. As with

Waterbody P1, the presence of algae blooms and an absence of submerged vegetation was recorded. The waterbody has some limited connectivity to off-site habitats to the east and north-east, however the eastern and northern boundaries are largely surrounded by reptile exclusion fencing associated with MA2.

- 3.23. Waterbody P3 (**Plate 12**) is approximately 80m<sup>2</sup> in area and as with the other ponds had algae blooms present and an absence of emergent and submerged vegetation. P3 is located within MA2 and is surrounded with scrub and ephemeral / short perennial vegetation. The fringes of this waterbody were dominated by common reed. MA2 is surrounded by existing reptile exclusion fencing, which has remained in place following a translocation exercise of reptiles from within other parts of the Site to MA2 in 2016.
- 3.24. Ditch D1 (**Plate 13**) is approximately 160m in length running north-south and is located within the north-east of the Site (out with the area to be directly affected by the OMSSD project) to the east of Compound 4 and west of MA1. Its depth is unknown due to dense vegetation precluding access, however, is likely to range between 20-40cm along its length. The ditch is dominated by common reed and is lined to the north by scrub vegetation with few areas of open water present. Water quality appeared to be poor with no submerged plants or aquatic invertebrates noted (**Plate 14**). Other immediately adjacent habitats comprise hardstanding, bare ground and ephemeral vegetation to the west and south-east, and semi-improved grassland and scrub to the east within MA1. MA1 is surrounded by reptile exclusion fencing, which has remained in place following a translocation exercise of reptiles from within other parts of the Oikos facility to MA2 in 2016.
- 3.25. Ditch D2 (**Plate 15**) is approximately 155m in length and 10-20cm in depth, running north of Building B6 and spurring to the west. Emergent vegetation is dominated by sea club rush *Bolboschoenus maritimus* to the north of Building B6, and then runs into an area of managed common reed where it runs west (areas where common reed occur are marked as Target Note 5 on **Figure 1**). Water quality appeared to be poor with no submerged plants or aquatic invertebrates noted and the ditch was dry during the summer/early autumn months.
- 3.26. Ditch D3 (**Plate 16**), is approximately 55m in length and 10-20cm in depth and located west of D2, to the south of an area of previously cleared ground which now comprises ephemeral vegetation. As with D2, D3 is dominated by managed common reed. Water quality appeared to be poor with no submerged plants or aquatic invertebrates noted and the ditch is likely to become dry during the summer/early autumn months.

#### Running Water

- 3.27. The Site boundary extends into the River Thames, a major waterway which is tidal at this point, associated with the jetties. The River Thames is considered in more detail within the PEIR Marine Ecology Chapter (Chapter 9).

#### Intertidal mudflats

- 3.28. Intertidal mudflat habitat is located to the south of the sea wall, south of the Oikos facility, as part of the River Thames foreshore, which is exposed at low tide to a width of approximately 100m. Intertidal mudflats are listed as a HoPI as this habitat traditionally supports a wide range of biotopes (sandy mud shores, soft muddy shores and muddy sand shore) which in turn support macroinvertebrate fauna, microalgae, fish and birds<sup>19</sup>. Intertidal habitats are considered in more detail within the PEIR Marine Ecology Chapter (Chapter 9).

## Protected, BAP and other Notable Fauna and Flora

- 3.29. As a result of the 2018 and 2020 'Extended' Phase 1 Habitat Surveys and a review of the ecological data searches, an assessment is made below on the potential of the Site to support the following species/groups. Please note that information with regard to badger *Meles meles* is confidential.
- Amphibians;
  - Reptiles;
  - Bats;
  - Birds;
  - Fish;
  - Water vole;
  - Invertebrates;
  - Notable flora; and
  - Invasive plant species.
- 3.30. The fauna descriptions provided below should be read in conjunction with **Figure 1**, which includes target notes, and the photographs (Plates) presented in **Appendix D**.

### Amphibians

- 3.31. EWT and EFC provided numerous records for smooth newt and GCN within 2km of the Site. Previous GCN presence /absence surveys undertaken by Johns Associates in 2012<sup>20</sup>, associated with the development of Howards Way (planning application ref. CPT/613/12/FUL) to the north of the Oikos facility, recorded a small population of GCN as being present within ponds and ditch systems. These are separated from the Oikos facility by the car storage facility which runs along the northern edge of the Oikos facility and further intervening habitats in the form of bare ground and hardstanding. GCN are both a SoPI and LBAP species.
- 3.32. Surveys undertaken by Thomson in 2015<sup>21</sup> also recorded the presence of a small population of GCN within ponds and ditch systems to the north of the Oikos facility.
- 3.33. No GCN were recorded within those waterbodies within the Oikos facility itself as part of the above surveys i.e. Ditch D1 by Johns Associates and Ditch D1 and Ponds P1, P2 and P3 by Thompson. It should also be noted that no GCN were recorded during the 2016 reptile translocation exercise.
- 3.34. An update Habitat Suitability Index (HSI) assessment was undertaken on the six waterbodies recorded on Site during the 2018 and 2020 'Extended' Phase 1 Habitat Surveys, a summary of which can be found in **Table 8** with full results detailed in **Appendix C**.

<sup>19</sup> JNCC (2016) *UK Biodiversity Action Plan Priority Habitat Descriptions: Intertidal Mudflats*.

<sup>20</sup> Johns Associates Limited (2012): *Ecological Impact Assessment. Calor Gas Ltd, Proposed Access Road, Canvey Island* Ref. 7239

<sup>21</sup> Thompson (2015): Great Crested Newt Survey. Oikos Storage, Canvey Island, For Oikos Storage Limited. Report Ref.: KOIK104 / 002&006 / 003 / 001

Table 8: Summary HSI Results

Waterbody	Suitability for GCN
P1	Good
P2	Good
P3	Good
D1	Excellent
D2	Good
D3	Average

- 3.35. As detailed in **Table 8** the waterbodies present on Site range from average suitability to excellent suitability for GCN. Whilst Ditch D1 is noted as being of excellent suitability for GCN, it should also be noted that no GCN have been recorded within Ditch D1 and although the ditch will be retained it is out with the area to be directly affected by the OMSSD project.
- 3.36. The remaining waterbodies on Site have limited to no suitable connectivity to Ditch D1 due to intervening habitats predominantly comprising buildings and hardstanding together with regularly managed vegetation (Pond 1 and Ditches D2 and D3). Ditches D2 and D3 also lie approximately 250m beyond Ditch D1. Whilst Ponds P2 and P3 lie approximately 120m and 200m south-west of Ditch D1 respectively, it should be noted that reptile exclusion fencing remains in place around MA1 and MA2 from the 2016 reptile translocation. This would largely preclude GCN – even if they were present in Ditch D1 - from accessing Pond P3 / MA2 (as well as MA1) and would also result in GCN having to cross areas of bare ground and hardstanding to access Pond P2. The reptile exclusion fencing for MA2 also extends south to the east of Pond P2. With regards to MA2, this fencing also extends along the east of Pond P2.
- 3.37. Given the above, it is also considered that the Site provides limited suitable terrestrial habitats for GCN. In addition, connectivity between off-site water bodies and terrestrial habitats and those within the Oikos facility is limited with intervening habitats comprising bare ground and hardstanding as well as reptile fencing also being present in areas.

#### Bats

- 3.38. EWT provided no records of bats, with EFC providing records for common and soprano pipistrelle (SoPI) bats within 2km of the Site. No bats, including incidental bat activity of any kind, was recorded during emergence / re-entry surveys undertaken on several buildings by Thomson in 2015<sup>22</sup> as part of a previous Deep Water Jetty planning application. This included Buildings B8 and B9 as shown on **Figure 1**, together with a third building which has since been demolished.
- 3.39. All seventeen buildings present on Site were assessed for the potential roosting bats during the 2018 and 2020 'Extended' Phase 1 Habitat Surveys, results of which are provided within **Appendix B**. However, in summary Buildings B3, B7, B9 and B12 were assessed to be of **low** bat roosting suitability as part of the 2018 'Extended' Phase 1 Habitat Survey, with the remaining buildings assessed to be of **negligible** bat roosting suitability. As part of an internal building inspection undertaken in 2019, these buildings were downgraded to **negligible** bat roosting suitability. All buildings on Site were considered to remain of **negligible** bat roosting suitability as part of the 2020 'Extended' Phase 1 Habitat Survey.

<sup>22</sup> Thompson (2015): Bat Survey. Oikos Storage, Canvey Island, For Oikos Storage Limited. Report Ref.: KOIK104 / 007 / 006 / 001

- 3.40. The Site is classified as poor in terms of potential commuting habitat due to the prevalence of buildings, hard standing and bare ground with a lack of suitable commuting linear features. The Site also experiences levels of night lighting given its 24hr operational nature. Lighting is present within bunds, up tank access stairways and operation areas, with flood (primarily security) lighting on stanchions, which is primarily focused on the Site perimeter. Furthermore, the Site is relatively exposed in nature, being situated within a coastal location.

#### Birds

- 3.41. Numerous bird records were provided by EWT and EFC within 2km of the Site.
- 3.42. Thirty bird species were recorded during the breeding bird survey carried out by Thomson in 2015<sup>23</sup>. Three species (house sparrow *Passer domesticus*, blue tit *Cyanistes caeruleus* and moorhen *Gallinula chloropus*) were confirmed as breeding and starling *Sturnus vulgaris* were identified breeding close to the Site and using the Site for foraging.
- 3.43. Twenty species were recorded as possibly breeding on the Site (reed warbler *Acrocephalus scirpaceus*, mallard *Anas platyrhynchos*, linnet *Carduelis cannabina* (SoPI), goldfinch *Carduelis carduelis*, greenfinch *Chloris chloris*, feral pigeon *Columba livia*, wood pigeon *Columba palumbus*, carrion crow *Corvus corone*, reed bunting *Emberiza schoeniclus*, kestrel *Falco tinnunculus*, swallow *Hirundo rustica*, great tit *Parus major*, magpie *Pica pica*, green woodpecker *Picus viridis*, collared dove *Streptopelia decaocto*, wren *Troglodytes troglodytes*, whitethroat *Sylvia communis*, pied wagtail *Motacilla alba*, dunnock *Prunella modularis* and blackbird *Turdus merula*). This is because they were recorded within suitable nesting habitat or singing males of territorial species were recorded. Of those species confirmed or possibly breeding, five species (house sparrow, linnet, reed bunting, dunnock and starling) are listed as either priority species (listed as a SoPI) or are included on the red list of Birds of Conservation Concern<sup>24</sup>.
- 3.44. During the 2018 'Extended' Phase 1 Habitat Survey, the following notable bird species were identified: house sparrow (SoPI); linnet (SoPI); and starling.
- 3.45. The Site offers limited foraging and nesting opportunities for common and notable species of bird, including the buildings, waterbodies, scrub, grassland and ruderal habitats, though given the habitats present it is considered unlikely that any significant populations of such species are present.

#### Fish

- 3.46. The River Thames is considered an important migratory route for Atlantic salmon *Salmo salar*, smelt *Osmerus eperlanus*, allis shad *Alosa alosa*, twaite shad *Alosa fallax*, European eel *Anguilla anguilla*, river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*. All species are listed as SoPI and, with the exception of European eel and smelt, all are also listed under the Bern Convention<sup>25</sup> and the EC Habitats Directives<sup>26</sup>. European eel is however listed under the EC Habitats Directives.

<sup>23</sup> Thompson (2015): Breeding Bird Survey. Oikos Storage, Canvey Island, For Oikos Storage Limited. Report Ref.: KOIK104 / 002 / 002 / 001

<sup>24</sup> <https://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf>

<sup>25</sup> Implemented by the Wildlife and Countryside Act 1981 as amended by the Animal Health, Invasive Alien Species, Plant Breeders' Rights and Seeds (Amendment etc.) (EU Exit) Regulations

<sup>26</sup> Implemented by The Conservation of Habitats and Species Regulations 2017 as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

3.47. Fish are considered in more detail within the PEIR Marine Ecology Chapter (Chapter 9).

#### Invertebrates

- 3.48. Numerous records of invertebrates of conservation importance were returned by EWT and EFC within 2km of the Site, many of which were associated with the nearby Canvey Wick SSSI. The invertebrate survey undertaken by Waterman in 2015 on part of the Oikos facility for the purposes of the Deep Water Jetty development application identified nine species of national conservation significance.
- 3.49. During the 2018 'Extended' Phase 1 Habitat survey, small heath (**Figure 1**, Target Note 1) and wall butterflies (**Figure 1**, Target Note 2), both SoPI, were recorded on Site.
- 3.50. As part of the previous Deep Water Jetty application, and due to the adverse impacts upon notable species including invertebrates (and reptiles), MA1 and MA2, albeit with hindsight possibly mistakenly, were created to mitigate those impacts. The majority of mitigation measures for invertebrates were provided within MA2 which included the enhancement of existing and the provision of new habitats.
- 3.51. MA1 comprises areas of common reed, semi-improved grassland and scrub, whilst MA2 comprises scrub, tall ruderal, semi-improved coarse grassland and ephemeral / short perennial habitats, together with a boulder slope on a southerly aspect, a sandy slope on a southerly aspect, and provides suitable habitat for notable species of invertebrate.
- 3.52. The remaining semi-natural habitats present on Site offer a range of opportunities of varying quality for foraging, commuting and nesting notable species of terrestrial invertebrate, including the areas of ephemeral / short perennial and ruderal vegetation and areas of semi-improved grassland scattered throughout the Site.
- 3.53. With regard to aquatic invertebrates, given the nature of those waterbodies (ponds and ditches) present on Site, and that these are likely to be of poor water quality, it is considered unlikely that the Site supports any aquatic invertebrate species of conservation concern.

#### Reptiles

- 3.54. Numerous records for common reptile species were returned by EWT and EFC within 2km of the Site. In addition, reptile surveys undertaken the eastern and northern portions of the Site by Thompson in 2015<sup>27</sup> recorded the presence of a 'good'<sup>28</sup> population of common lizard and a 'low' population of grass snake (both SoPI).
- 3.55. Multiple locations on Site were identified during the 2018 and 2020 'Extended' Phase 1 surveys to offer foraging, commuting, basking, resting and hibernating opportunities for common species of reptiles. Such features are identified on **Figure 1** as Target Note 3.
- 3.56. As already referred to, as part of the previous Deep Water Jetty development application, MA1 and MA2 were created to mitigate for impacts, including those effecting reptiles. This included the enhancement of existing and the provision of new habitats, together with the translocation of those

<sup>27</sup> Thompson (2015): Reptile Survey. Oikos Storage, Canvey Island, For Oikos Storage Limited. Report Ref.: KOIK104 / 002 / 004 / 001

<sup>28</sup> Froglife (1999): *Advice Sheet 10: Reptile Survey* Froglife

reptile populations present within the Deep Water Jetty planning application development area to MA1 and MA2.

- 3.57. As stated within the 'Habitats' section above, MA1 comprises areas of common reed, semi-improved grassland and scrub, whilst MA2 comprises scrub, tall ruderal, semi-improved coarse grassland and ephemeral / short perennial habitats, together with a boulder slope (**Figure 1**, Target Note 6) on a southerly aspect, all of which provide suitable habitat for reptiles. It should also be noted that the reptile fencing used as part of the previous translocation exercise is still erected along the boundaries of MA1 and MA2 (**Plate 17** and **Plate 18**).

#### Water vole

- 3.58. A total of 10 records for water vole (SoPI, LBAP) were returned from EWT and EFC within 2km of the Site. No evidence of water voles was recorded during the 'Extended' Phase 1 Surveys.
- 3.59. The 2015 habitat suitability assessment undertaken by Thomson<sup>29</sup> found two water bodies (Ditch D1 and Pond P2) with low potential to support water voles and two water bodies (Ponds P1 and P3) with moderate potential to support water vole. However, no sightings or evidence of water voles was recorded at these water bodies during the presence (or likely absence) survey also undertaken in 2015. Consequently, it was concluded that water voles are likely absent from the Site.
- 3.60. It should also be noted that no evidence of water vole was recorded within those ditch systems present to the north of the Site during surveys undertaken by Johns Associates in 2012<sup>30</sup> associated with the development of Howards Way.
- 3.61. Ditch D1 will be retained and is out with of the OMSSD project site. Furthermore, land to the north of the Oikos facility also contains limited connectivity, if any, to habitats within the local area of value to this species and where they have been recorded.

#### Otter

- 3.62. No records for this species were returned from EWT and EFC within 2km of the Oikos facility. The Oikos facility and surrounding area does not provide any suitable habitat to support this species and as such otter *Lutra lutra* are considered likely to be absent from the Site and surrounding area.

#### Notable Flora

- 3.63. Records for several notable species of flora were returned by EWT and EFC within 2km of the Site. No significantly notable flora was identified during the 'Extended' Phase 1 Habitat Surveys on the Site itself.

#### Invasive Plant Species

- 3.64. No records of invasive plant species listed on Schedule 9 of the WCA were returned by EWT or EFC within 2km of the Site and no such species were recorded on Site during the 'Extended' Phase 1 Habitat Surveys.

<sup>29</sup> Thompson (2015): Water Vole Survey. Oikos Storage, Canvey Island, For Oikos Storage Limited. Report Ref.: KOIK104 / 002 / 005 / 004

<sup>30</sup> Johns Associates Limited (2012): *Ecological Impact Assessment. Calor Gas Ltd, Proposed Access Road, Canvey Island* Ref. 7239

## 4. Assessment

- 4.1. The potential IEFs that may be adversely affected by the OMSSD project and Section 73 Application (based on the results of the PEA and the OMSSD project and Section 73 Application information received to date) are listed in **Table 9** below. This table details the rationale for the inclusion of each potential IEF and also details the potential effect pathways and any requirement for further ecological assessments.
- 4.2. It should be noted that where further surveys have been highlighted as being required to be undertaken, a number of these surveys were completed in 2018/2019 – 2020 and are reported within a standalone Protected Species Report. With regard to water vole and black redstart *Phoenicurus ochruros*, these surveys have been scoped in as a result of the 2020 Scoping Opinion and findings of the 2019 reptile survey and are to be completed in 2021. It should also be noted that a series of update surveys for protected and notable species including GCN, invertebrates, and wintering birds are also to be undertaken at the Site in 2021. The results of those surveys yet to be completed will be provided within an updated Protected Species Report.

Table 9: Ecological Features Scoped In for Further Survey / Assessment

Potential Important Ecological Feature	Category of Importance	Rationale	Potential Effect Pathway	Requirement for Further Ecological Survey / Assessment
Statutory Designated Sites –  Thames Estuary and Marshes;  Benfleet and Southend Marshes;  Canvey Wick;  Holehaven Creek; and  Vange and Fobbing Marshes	SPA / SSSI / Ramsar  SPA / SSSI / Ramsar  SSSI  SSSI  SSSI	The proposed OMSSD project includes provision of additional marine loading arms and pipelines on the existing jetties: habitats for wintering birds (i.e. intertidal mud) are not to be affected, however capital dredging within the immediate vicinity of Jetty 2 is required. The proposed OMSSD project also falls within the SSSI Impact Risk Zones.	The construction and operational phases of the OMSSD project may generate disturbance upon notable bird species that are designating features for these designated sites. Therefore, the OMSSD project may potentially impact the qualifying features for their designations.  The OMSSD project also has the potential to impact upon several of these designated sites as a result of air quality during the operational phase.	Yes.  A Habitats Regulations Assessment (HRA) Screening Report should be produced for the OMSSD project, informed by wintering bird surveys.  Assessment of impacts upon SSSIs for the OMSSD project and consultation with Natural England is required.
Non-statutory designated sites –  West Canvey Marshes;	LWS	Brick House Farm Marsh and Canvey Village Marsh are located within the immediate vicinity of the Site. West Canvey Marshes is located adjacent to Roscommon Way, which is the main	Potential for these non-statutory designated sites to be indirectly impacted upon as a result of air quality during the operational phase	Yes.  Assessment of impacts upon these LWS's for the OMSSD project is required.

Potential Important Ecological Feature	Category of Importance	Rationale	Potential Effect Pathway	Requirement for Further Ecological Survey / Assessment
Brick House Farm Marsh; and  Canvey Village Marsh		transport link to the Oikos Facility.		
Amphibians	Hab Regs, WCA, S41 & LBAP	Terrestrial habitats on Site have been assessed to be of limited suitability. Ditches D1-D3 provide excellent (D1), Good (D2) and Average (D3) suitability for GCN, whilst Ponds P1-P3 all provide good suitability; however all ponds and ditches are located over 250m from any known populations to the north of the Site, with limited intervening connecting habitats present.	The construction phases of the OMSSD project and Section 73 Application may result in direct and indirect impacts on GCN habitats, as well as GCN themselves.	Yes (completed in 2019 and being updated in 2021).  Given the absence of GCN on Site as part of historical surveys, further assessment in the form of eDNA surveys of waterbodies suitable for supporting GCN i.e. Ponds P1 – P3.
Breeding Birds (predominantly black redstart)	WCA	A pair of black redstart were recorded as successfully breeding within a building during the 2019 reptile survey.	Loss of nesting habitat resulting from the OMSSD project. Killing or injury and disturbance of breeding individuals during clearance works.	Yes (to be completed in 2021)  Further assessment in the form of a breeding bird / black redstart survey.
Wintering birds	Birds Directive	Mudflats/inter-tidal habitats may support wintering birds that may also use the nearby SPA.	Disturbance generated as a result of the OMSSD project.	Yes (completed in 2018 – 2019 and 2019 – 2020 and being updated 2020-2021).  Wintering bird surveys
Invertebrates	S41 and LBAP	Habitats on Site have been assessed to be suitable habitat for notable invertebrates.	Habitat loss as a result of the OMSSD project and Section 73 application.	Yes (completed in 2019 and being updated 2020-2021).  Invertebrate surveys in suitable habitat.
Reptiles	WCA, S41 and LBAP	Several areas of the Site have been assessed to be suitable for supporting reptiles.	Habitat loss and potentially the killing and injury of reptiles as a result of the OMSSD project and	Yes (completed in 2019).

Potential Important Ecological Feature	Category of Importance	Rationale	Potential Effect Pathway	Requirement for Further Ecological Survey / Assessment
			Section 73 application.	Reptile presence / absence surveys in suitable habitat.
Water Vole	WCA, S41, LBAP	Whilst considered to be absent from the Site an update water vole survey is to be undertaken in response to the scoping opinion.	Habitat loss and potentially the killing and injury as a result of the OMSSD project and Section 73 application, if present.	Yes (to be completed in 2021). Water vole presence / absence surveys in suitable habitat i.e. D1, and P1 – P3.

- 4.3. All other ecological features identified through the PEA have been scoped out of further assessment because the population or area likely to be affected by the Development is of insufficient size or diversity to be of ecological value, no potential effect pathway between the Development and these features has been identified; and/or contravention of the legislation relating to the feature is unlikely to occur. The rationale for scoping out features is provided in **Table 10** below.

Table 10: Ecological Features Scoped Out of Further Assessment

Ecological Feature	Rationale
Statutory Designated Sites (Other)	Given the qualifying features for their designation Pitsea Marsh SSSI; Northward Hill SSSI; and Canvey Lake LNR are considered to be located at a sufficient distance away from the Oikos facility that any direct and indirect effects upon these sites and the habitats and species they support are unlikely to occur.
Non-statutory Designated Sites (Other)	Those remaining non-statutory designated sites are considered to be located at a sufficient distance away from the Oikos facility that, any significant effects are unlikely to occur.  Good practice construction measures – most likely to be secured through a CEMP – will be implemented which will, in any case, protect other non-statutory designated sites within the local area, together with the habitats and species they support, during preparation and construction activities.
Habitats (aquatic)	Aquatic habitats recorded on Site (ditches and ponds) are both locally and nationally common and do not meet the requirements for being BAP / HoPIs. No significant effects are anticipated as a result of the OMSSD project.  Aquatic (marine) habitats recorded adjacent to the Site (running water and intertidal mudflats i.e. the River Thames) may be subject to small levels of general disturbance, including as a result of the capital dredge. However, given the overall extent of this aquatic system, significant effects are considered unlikely to occur during the construction activities.  Appropriate drainage features shall also be incorporated into the OMSSD project to prevent effects associated with surface run-off during operation.  No significant effects are anticipated as a result of the OMSSD project. Marine habitats are however considered in more detail within the PEIR Marine Ecology Chapter (Chapter 9).

Ecological Feature	Rationale
Habitats (terrestrial)	Terrestrial habitats recorded within the Site are commonly found at local and national levels and are not assessed to be of geographical or legal importance (i.e. they do not meet the requirements for being BAP / HoPIs). No significant effects are anticipated from their loss as a result of the OMSSD project.
Bats (roosting)	The buildings on the Oikos facility have been assessed to be of negligible suitability for roosting bats.  No significant effects are anticipated as a result of the OMSSD project.
Bats (foraging/commuting)	It is unlikely the Site would support any significant populations of foraging / commuting bats due to the quality of those habitats and connectivity present on Site, together with limited commuting links to the wider locale. No significant effects are anticipated as a result of the OMSSD project.
Fish	Fish may be subject to small levels of general disturbance, including as a result of the capital dredge. However, given the overall extent of this aquatic system, significant effects are considered unlikely to occur during the construction activities.  Appropriate drainage features shall also be incorporated into the OMSSD project to prevent effects associated with surface run-off during operation.  No significant effects are anticipated as a result of the OMSSD project. Fish are however considered in more detail within the PEIR Marine Ecology Chapter (Chapter 9).
Notable flora	No notable species of flora have been recorded on Site to date. It is unlikely the Site would support notable flora due to the habitats present and the Site's operational use, including regular disturbance / clearance activities. No significant effects are anticipated as a result of the OMSSD project.
Otter	The Oikos facility and surrounding area does not provide any suitable habitat to support this species and as such otter are considered likely to be absent from the Site and surrounding area. No significant effects are anticipated as a result of the OMSSD project.

## 5. Ecological Constraints and Opportunities

- 5.1. The PEA has identified potential IEFs anticipated to be affected by the Development (based on plans received to date) that could result in significant ecological effects. The requirement for further ecological assessments to fully define any IEFs present has been highlighted within **Table 9** and a detailed scope is provided below. It should be noted that where further surveys have been highlighted as being required to be undertaken, a number of these surveys were completed in 2019 – 2020 and are reported within a standalone Protected Species Report. With regard to water vole and black redstart, these surveys have been scoped in as a result of the 2020 Scoping Opinion and findings of the 2019 reptile survey are to be completed in 2021. It should also be noted that a series of update surveys for protected and notable species including GCN, invertebrates, and wintering birds are also to be undertaken at the Site in 2021. The results of those surveys yet to be completed will be provided within an updated Protected Species Report.
- 5.2. To minimise or avoid any significant ecological effects, measures which should look to be incorporated within the scheme design have also been outlined.
- 5.3. Although several ecological features have been scoped out of the assessment (**Table 10**), measures to ensure that legal compliance is adhered are still required. These measures are also set out below.

### Designated Sites

#### Statutory Designated Sites

- 5.4. The Site is located approximately 1.4km away from the Thames Estuary & Marshes SPA, with Benfleet and Southend Marshes SPA also present within 3km. Consequently, an HRA is required to be undertaken by the determining body and a HRA screening report is required to be produced to inform the planning decision. Given the qualifying features of the SPAs relate to notable populations of wintering birds, wintering bird surveys are needed to inform the HRA screening report. The HRA screening report will assess the impacts during the construction and operational phases of the Development upon the notable populations of wintering birds for which the SPA has been designated. Wintering bird surveys are required each month between October and March, assessed either side of high tide, and have been completed over the winters of 2018 – 2019 and 2019 - 2020. Further update surveys for wintering birds are also being completed in 2020-2021.
- 5.5. At their closest points the Site is located approximately 0.10km from Holehaven Creek SSSI and 0.76km from Canvey Wick SSSI. Consequently, the Site lies within the SSSI risk impact Zones for these sites (as well as South Thames Estuary & Marshes and Benfleet and Southend Marshes SSSIs). The OMSSD project meets the criteria which triggers the requirement for consultation with Natural England on the likely risks of the OMSSD project upon these sites. Any impacts on these SSSIs will need to be assessed and eliminated/mitigated with appropriate consultation with Natural England.
- 5.6. There is also potential for the above statutory designated sites, together with Vange and Fobbing Marshes SSSI to be adversely affected as a result of air quality issues during the operational phase of the OMSSD project.

## Non-Statutory Designated Sites

- 5.7. Whilst no significant adverse effects are anticipated to occur to any non-statutory designated sites during construction activities, given the proximity of Brick House Farm Marsh LWS and Canvey Village Marsh LWS to the Site, it is also recommended that during construction of the OMSSD project, mitigation measures are implemented to minimise any indirect effects such as dust and noise pollution as well as surface run-off upon these sites. Such good practice measures will most likely be documented within a Construction Environmental Management Plan (CEMP). Similar measures should also be adopted during habitat enhancement works as part of Biodiversity Net Gain (BNG) provision (see below).
- 5.8. Given their proximity to the Site and Roscommon way, there is also potential for Brick House Farm Marsh LWS, Canvey Village Marsh LWS, and West Canvey Marshes LWS to be adversely affected as a result of air quality issues during the operational phase of the OMSSD project. It is considered that those remaining non-statutory designated sites within the ZOI would not be significantly adversely affected by the Development given their distance from the Site.
- 5.9. As previously mentioned, Oikos wishes to relocate MA1 and MA2 to a suitable off-site location. This course of action is being progressed as a separate activity to the promotion of the OMSSD project because it is now considered inappropriate to have such areas on an active site that stores and handles fuel and associated products. This course of action is, therefore, one which Oikos would be taking forward even in the absence of the proposed OMSSD project.
- 5.10. In addition to providing for the re-location of these existing mitigation areas, the offsite ecological improvements being drawn up as part of the OMSSD project also seek to both mitigate for the loss of other areas of ecological value within the area to be developed as a result of the OMSSD project and provide an appropriate level of BNG.
- 5.11. In summary, the package involves undertaking ecological enhancement and improvement works on:
- (i) Land beyond and to the north of the Oikos facility located alongside Howard's Way, a private vehicle access road that runs from Haven Road to the Calor facility. This access road was granted planning permission in 2012 (planning permission ref: CPT/613/12/FUL) and this area is subsequently known as the Calor Road site. The Calor Road also currently falls partly within the Brick House Farm Marsh LWS boundary. Works within this area will mitigate for the adverse impacts being caused in relation to invertebrates and reptiles.
  - (ii) Other land within the vicinity of the Oikos facility. At the time of writing there are a number of potential land options being investigated for the provision of this element of the package, including Brick House Farm Marsh LWS. Works within the area ultimately chosen will provide BNG and as such are also likely to result in beneficial effects occurring to the area of land which is ultimately chosen for BNG delivery.

## Habitats (Notable)

- 5.12. No notable habitats would be affected by the Development. Notwithstanding this, a CEMP shall be produced covering vegetation removal and associated issues. As part of BNG delivery, proposals for this should look to include for the enhancement of existing or creation of notable (i.e. HoPI) habitats.

### **Habitats (Non-notable)**

- 5.13. Those remaining habitats present within the Site are both locally and nationally common and as such it is assessed that no significant adverse effects would arise as a result of their loss.
- 5.14. Nevertheless, the proposals would seek to provide enhancements for biodiversity, including a net gain for biodiversity. Provision of BNG shall be sought for both the OMSSD project and the Section 73 Application as appropriate.
- 5.15. It is understood that, as a result of the operational nature of the Site, no significant landscape planting or ecologically valuable habitat creation (or retention) is proposed to occur within the Site itself. However, it is likely that semi-natural vegetation in the form of ruderal / ephemeral / pioneer species would become established amongst areas of the Oikos facility (particularly around the storage tanks which would have a gravel, or similar, based substrate). This would continue to be subject to operational management and, therefore, replicate the transient nature of brownfield habitats commonly utilised by faunal species such as invertebrates.
- 5.16. Notwithstanding the above, the loss of those habitats on-Site as part of the OMSSD project and Section 73 Application respectively is proposed to be mitigated for off-site, as described within the 'Non-statutory Designated Sites' section above.
- 5.17. Notwithstanding the above, it is noted that several ecological corridors are present on the Site which link areas to the north of the Site to the existing foreshore south of the Site. However, these links themselves are largely limited and occur in the form of MA1 and MA2, and associated habitats (in the form of grassland and scrub), and Ditch D1. Ditch D1 is to be retained and is out with of the OMSSD project site and Section 73 Application. Whilst MA1 would not be subject to development, it shall be subject to regular management for operational and safety purposes. Although MA2 is to be lost, ecological connectivity across this area would be maintained through the presence of scrub and grassland vegetation to the north of MA2, within the adjacent car storage facility. This scrub and grassland vegetation then connects to an area of similar habitat to the east of the adjacent car storage facility which provides a north-south corridor and links to those habitats present to the north of the Site.

### **Protected and Notable Fauna**

- 5.18. Protected and notable fauna on Site and within the Zol that could be significantly affected by the Development have been assessed to include amphibians (GCN), breeding birds (black redstart), reptiles, invertebrates, water voles and wintering birds. No other protected and notable fauna are assessed to be potential IEFs.
- 5.19. It is recommended that mitigation in the form of appropriate protection measures are adhered to during the construction phase of the Development for IEFs and other protected and notable fauna. These measures would ensure legal compliance and that good practice is adopted and are outlined below. Once confirmed and finalised, these measures shall be detailed within an Ecological Mitigation and Enhancement Strategy (EMES) and CEMP as relevant.

### **Amphibians**

- 5.20. The Site has been assessed to provide limited terrestrial habitat for GCN, with those waterbodies present offering between excellent (Ditch D1); good (Ponds P1 – 3 and Ditch D2) and average (Ditch D3) aquatic habitat. Given the absence of GCN recorded from the Site in 2012 and 2015,

but the presence of GCN recorded to the north of the Site in 2012 and 2015, as a precautionary measure further eDNA surveys have been recommended to identify the presence or likely absence of GCN within the OMSSD project site. This survey should be undertaken upon Ditch D1, which is assessed to be of excellent suitability but where no GCN have been recorded previously and is to be retained and is out with of the OMSSD project site and Section 73 Application, as well as those suitable waterbodies present on Site within 250m of Ditch D1 i.e. Ponds P1- P3. An eDNA survey was undertaken in 2019 (reported within a standalone Protected Species Report) and a further update eDNA survey for GCN is to be undertaken in 2021, the results of which shall be reported within an updated Protected Species Report.

- 5.21. Those off-site measures undertaken as part of a reptile translocation exercise to facilitate the OMSSD project and Section 73 Application (see below) shall also be of benefit to the GCN population present to the north of the Site. Off-site measures as part of BNG delivery may also provide additional enhanced off-site habitat for GCN and other common species of amphibian (location dependent).

## Bats

- 5.22. As part of the 2018 'Extended' Phase 1 Habitat Survey four buildings (**Figure 1** – Buildings B3, B7, B9 and B12, and **Appendix B**) were assessed to be of low bat roosting suitability. Following this, an internal inspection of these buildings was undertaken in 2019. As a result of this internal inspection, these buildings were downgraded to be of negligible bat roosting suitability. The 2020 'Extended' Phase 1 Habitat Survey also confirmed all buildings on Site to be of negligible bat roosting suitability.
- 5.23. Furthermore, the Site is assessed to provide limited opportunities for foraging and roosting bats and no bat activity of any kind was recorded during those surveys undertaken by Thompson in 2015 as part of the previous Deep Water Jetty planning application. Consequently, no further survey for bats is considered to be required in this instance.
- 5.24. In the unlikely event that roosting bats are discovered during the course of works, all works should cease, and an ecologist consulted for further advice. This may include consultation with Natural England and the requirement for the application of a European Protected Species (EPS) licence.
- 5.25. As part of the OMSSD project, the production of a wildlife friendly lighting strategy should be considered, whilst taking the operational nature and security requirements of the Site into consideration.
- 5.26. Off-site measures as part of BNG delivery would also likely provide enhanced off-site foraging and commuting habitat for bats.

## Breeding Birds

- 5.27. Given the habitats present and the results of the breeding bird survey undertaken by Thompson in 2015, the Site is considered unlikely to support any significant populations of notable or protected species of breeding bird. It should however be noted that a pair of black redstart was recorded as breeding on Site in 2019 (refer to Protected Species Report). The Site also affords opportunities to support common species of breeding bird. Given this, and comments received from the 2020 Scoping Opinion, an updated breeding bird survey is scheduled to be undertaken at the Site in 2021, the results of which shall be reported within an updated Protected Species Report.

- 5.28. All species are bird are legally protected during the breeding season. Furthermore, black redstart is also listed under Schedule 1 of the WCA and is therefore provided additional protection against disturbance whilst breeding. The following mitigation measures are therefore recommended to ensure legal compliance:
- Should any habitats of value to nesting birds, including habitats such as scrub and buildings / structures and waterbodies require removal to facilitate the OMSSD project and Section 73 Application, this will be undertaken outside of the breeding bird season (the breeding season being March to August inclusive). However, if such works cannot be undertaken outside the breeding bird season an experienced ecologist will be deployed to carry out an inspection of such features at least within 24 hours prior to the clearance. If an occupied nest is detected, an appropriate buffer zone, together with any additional measures to prevent disturbance to breeding black redstart, will be created around the nest, and clearance of this area delayed until the young have fledged and left the nest.
- 5.29. Off-site measures as part of BNG delivery would also likely provide enhanced off-site foraging and nesting habitat for birds.

### Invertebrates

- 5.30. The Site has been identified to provide suitable habitat for a range of invertebrate species and as previously discussed; notable invertebrates were identified on Site during the invertebrate survey undertaken by Waterman in 2015. However, this is not surprising given the proximity of the Site to Canvey Wick SSSI, which is designated for its notable invertebrate assemblage, and other similar sites within Canvey Island.
- 5.31. Given that suitable invertebrate habitat is to be lost as part of the OMSSD project and Section 73 Application, an update terrestrial invertebrate survey has been recommended to assess the current species and population assemblage present on Site. A terrestrial invertebrate survey was undertaken in 2019 (reported within the standalone Protected Species Report), the results of which have been used to inform any mitigation measures required to be implemented (which shall be finalised and reported within a standalone EMES), including habitat enhancement works for invertebrates within the Calor Road site. A further updated terrestrial invertebrate survey is also being undertaken in 2020-2021, the results of which shall be reported within an updated Protected Species Report.
- 5.32. Off-site measures as part of BNG delivery would also likely provide additional enhanced off-site habitat for invertebrates.

### Reptiles

- 5.33. As previously discussed, common species of reptile were identified within the northern and eastern parts of the Site during the 2015 survey undertaken by Thomson as part of the Deep Water Jetty application (ref: 16/0106/FUL). Resulting from this, a total of 252 common lizards and 2 grass snakes were translocated from the development to MA1 and MA2, following suitable habitat creation and enhancement works within these areas.
- 5.34. Areas within the remainder of the Site have been identified as also providing suitable habitat for supporting common species of reptile.
- 5.35. Given that suitable reptile habitat is to be lost as part of the OMSSD project and Section 73 Application, with reptiles known to be present on Site, an update reptile survey was undertaken in

2019 (reported within the standalone Protected Species Report). It should be noted that given the numbers of common lizard and grass snake that have been translocated to MA1 and MA2 and that reptile exclusion fencing is still in place, an 'exceptional' (high) population of common lizard and a 'low' population of grass snake within these areas can be assumed. It was, therefore not considered necessary to undertake surveys of these areas.

- 5.36. Those reptile populations present on Site are required to be translocated off-site to facilitate the OMSSD project and the Section 73 Application. A suitable off-site receptor site has been identified within an area of land to the north of the Site and to the north and south of Howards Way (the Calor Road site). To inform the translocation exercise, including any measures required to be implemented to allow for the Calor Road site to accept the translocated reptile populations (which shall be finalised and detailed within a standalone EMES), a reptile survey of the Calor Road site was also undertaken in 2019 (reported within the standalone Protected Species Report).
- 5.37. In addition to those measures proposed within the Calor Road site receptor area, off-site measures as part of BNG delivery may also provide additional enhanced off-site habitat for reptiles (location dependent).

## 6. Conclusions

- 6.1. As a result of the PEA and based on the OMSSD project and Section 73 Application information received to date, potential IEFs within the Zol that also have the potential to be affected by the OMSSD project and Section 73 Application comprise:
- Statutory designated sites / wintering birds – due to potential to be affected by the OMSSD project;
  - Non-statutory designated sites - due to potential to be affected by the OMSSD project;
  - Amphibians (GCN) – due to potential to be affected by the OMSSD project and Section 73 Application;
  - Breeding Birds - due to potential for black redstart to be affected by the OMSSD project;
  - Invertebrates - due to potential to be affected by the OMSSD project and Section 73 Application;
  - Reptiles - due to potential to be affected by the OMSSD project and Section 73 Application; and
  - Water vole - due to comments received from the 2020 Scoping Opinion and potential to be affected by the OMSSD project and Section 73 Application.
- 6.2. Further surveys for wintering birds, GCN, invertebrates, and reptiles were undertaken in 2018/2019 – 2020 and have been reported within a standalone Protected Species Report. Update surveys for wintering birds, GCN, and invertebrates, together with surveys for breeding birds and water vole are also being undertaken in 2020-2021. The results of these surveys will be reported within an updated Protected Species Report.
- 6.3. Whilst several non-statutory designated sites are also considered to be IEFs with the potential to be affected by the OMSSD project, no survey of these sites is considered to be required to allow for an assessment of impacts to be undertaken.
- 6.4. Furthermore, to facilitate the OMSSD project and the Section 73 Application, additional measures are required to allow for the relocation of those reptile populations present on Site to within an off-site receptor area. This receptor area has been identified as an area of land to the north of the Site, known as the Calor Road site. To inform those habitat creation / enhancement measures required to increase the carrying capacity of this area, a reptile survey of the Calor Road site was undertaken in 2019 (reported within the standalone Protected Species Report). The Calor Road site shall also include additional habitat creation / management works to provide mitigation for invertebrates within this area.
- 6.5. Those remaining features within the Zol have been scoped out of the IEF assessment due to these features being of insufficient biodiversity conservation value or a lack of an identified pathway for significant potential effects to occur. However, further consideration for marine habitat and species is made within the PEIR Marine Ecology Chapter (Chapter 9).
- 6.6. Notwithstanding the above, recommendations have been made within this report to ensure legal compliance and ensure good practice measures are adopted during the construction phase of the OMSSD project as well as the Section 73 Application.
- 6.7. Due to the operational nature of the Site, no significant landscape planting or ecologically valuable habitat creation (or retention) is proposed to occur within the Site boundary itself. Given this, mitigation for the loss of those habitats on-Site as part of the OMSSD project and Section 73

Application respectively is proposed to occur off-site, with a number of potential land options currently being investigated.

- 6.8. It should be noted that separate Biodiversity Net Gain Assessments are being undertaken for the OMSSD project and Section 73 Application respectively, the results of which shall be reported separately within a standalone Biodiversity Net Gain Briefing Note.
- 6.9. Off-site measures as part of BNG delivery will also provide additional and intrinsically enhanced off-site habitat for invertebrates and other faunal species, such as amphibians, bats, birds, and reptiles as well as potentially providing enhancements to non-statutory designated sites (location and proposals dependent).
- 6.10. It should be noted that this PEA is relevant to the legislation detailed in Section 2 and **Appendix A** at the time of writing. If there are any changes to legislation prior to the Development being completed, the advice within this PEA may require amending / updating in line with any legislative updates.
- 6.11. If there is a significant period between this PEA and the OMSSD project or Section 73 Application commencing, the ecological value of the Site may change, and the Site will, therefore, be subject to an update survey.



## Figures

Figure 1: Habitat Features Plan (ref: WIB15497-107-GR-EC-1G)

## Figures

Oikos Marine & South Side Development  
WIB15497-107  
WIB15497-107-R-1-6-1-PEA

- Olkos Facility
- Building
- Active Storage Tanks
- Handstanding
- Bare Ground
- Semi-improved Grassland
- Ephemeral
- Tall Ruderal
- Scattered Scrub
- Waterbody / Ditch
- Tidal Waterbody
- Existing Mitigation Areas



- Target Note
- Small Heath Butterfly (2018)
- Wall Butterfly (2018)
- Areas of Reptile Potential
- Shingle and Birds Foot Terfil
- Phragmites
- Rubble (Boulder Slope)



Project Details  
 Figure Title  
 Figure Ref  
 Date  
 File Location

## APPENDICES

### A. Planning Policy and Summarised Flora and Fauna Legislation

Given that the OMSSD project is classified as an NSIP, relevant policy for this type of development is the National Policy Statement for Ports. However, given that a Section 73 Application is also to be made, relevant national and local planning policy is provided.

#### National Planning Policy

##### National Policy Statement for Ports

The National Policy Statement for Ports<sup>31</sup> highlights the need for port development to satisfactorily address Habitats and Species Assessment requirements (Section 4.8) before then providing advice (Section 5.1) on how impacts on biodiversity and geological conservation should be considered. Paragraphs within Section 5.1 of relevance to the Site comprise:

- 5.1.4** *“Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the decision-maker consider thoroughly the potential effects of a proposed project.”*
- 5.1.5** *“The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.”*
- 5.1.10** *“The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for these sites but do not provide statutory protection for potential Special Protection Areas (pSPAs) before they have been agreed with the European Commission. For the purposes of considering development proposals affecting them, as a matter of policy, the Government wishes pSPAs to be considered in the same way as if they had already been designated. Listed Ramsar sites should, also as a matter of policy, receive the same protection.”*
- 5.1.12** *“Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect, after mitigation, on the site’s notified special interest features is likely, an exception should only be made where the benefits (including need) of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. The decision-maker should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site’s biodiversity or geological interest.”*
- 5.1.14** *“Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role*

<sup>31</sup> Department for Transport (2012): 'National Policy Statement for Ports. ISBN 9780108511196

*to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. The decision-maker should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.”*

- 5.1.16** *“Development proposals provide many opportunities for building in beneficial biodiversity or geological features as part of good design. When considering proposals, the decision-maker should maximise such opportunities in and around developments, using requirements or planning agreements where appropriate.”*
- 5.1.17** *“Many individual wildlife species receive statutory protection under a range of legislative provisions.”*
- 5.1.18** *“Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action. The decision-maker should ensure that these species and habitats are protected from the adverse effects of development, where appropriate, by using requirements or planning agreements. The decision-maker should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits (including need) of the development clearly outweigh that harm.”*
- 5.1.19** *“The applicant should include appropriate mitigation measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:*
- during construction, it will seek to ensure that activities will be confined to the minimum areas required for the works;*
  - during construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements;*
  - habitats will, where practicable, be restored after construction works have finished; and*
  - opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals.”*

**5.1.20** *“Where the applicant cannot demonstrate that appropriate mitigation measures will be put in place, the decision-maker should consider what appropriate requirements should be attached to any consent and/or planning obligations entered into.”*

**5.1.21** *“The decision-maker will need to take account of what mitigation measures may have been agreed between the applicant and Natural England (or the Countryside Council for Wales) or the Marine Management Organisation (MMO), and whether Natural England (or the Countryside Council for Wales) or the MMO has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences.”*

**5.1.22** *“Capital dredging: where capital dredging is required as part of the development, this will need to be subject to full environmental impact assessment, including likely effects on protected European sites or species. As a physical modification, it will need to be tested*

## **Appendices**

*under the Water Framework Directive (2000/60/EC). The deposit of dredged material on land for recovery or disposal will be subject to the need for a permit or the registration of an exemption.”*

## Overarching National Policy Statement for Energy (EN-1)

The Overarching National Policy Statement for Energy (EN-1) was published in 2011 and sets out the Government’s policy for delivery of major energy infrastructure. This document sets out information with regard to impacts on Biodiversity and Geological Conservation that are not materially different to that set out within The National Policy Statement for Ports referred to in the preceding paragraphs.

## National Planning Policy Framework 2019

The National Planning Policy Framework<sup>32</sup> (NPPF) was published in 2019. Section 15 (outlined below) of the NPPF, ‘Conserving and Enhancing the Natural Environment’, replaces Section 11 of the previous NPPF 2012 revision<sup>17</sup>. However, Government Circular 06/200518 - Biodiversity and Geological Conservation: Statutory Obligations and Their Impact within the Planning System, remains valid and is referenced within the NPPF.

The NPPF encourages the planning system to contribute to and enhance the natural and local environment. This should be achieved by:

- “Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*

*Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate” (Paragraph 170).*

The NPPF also stipulates that Local Planning Authorities (LPAs), when determining planning applications, should apply the following principles:

- “If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- *development on land within or outside a Site of Special Scientific Interest, and which is likely to*

<sup>32</sup> Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework*.

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*have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the Site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*

- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.”*

## **Local Planning Policy**

### **New Castle Point Borough Council Local Plan. Pre-submission Plan 2018-2033**

The Castle Point Local Plan 2018 - 2033<sup>3</sup> was submitted to the Secretary of State on 2 October 2020 for examination. Section 19 addresses ‘Conserving and Enhancing the Natural Environment’, of which the following policies are considered to be relevant to the Site:

**Strategic Policy NE1:** ‘Green Infrastructure and the Undeveloped Coast’ states:

1. *Development which results in the creation, restoration, enhancement, expansion and improved connections between green infrastructure features will be encouraged. The provision of green infrastructure that offers multiple benefits to the environment and local communities will be supported. Through development proposals the Council will seek to secure:*
  - a. *The preservation and enhancement of green infrastructure, ecological assets, areas of nature conservation and valued landscapes;*
  - b. *A net increase in biodiversity, with a focus on priority habitats and priority species;*
  - c. *Management of and a reduction in pollution to air, water and soil through an increased provision of green infrastructure;*
  - d. *Opportunities for local food production; and*
  - e. *Recreational benefits for local people, including access to coast.*
2. *Proposals which will result in the loss, degradation, fragmentation and / or isolation of existing green infrastructure will not be supported, unless it can be demonstrated through the provision of new or enhanced green infrastructure in other areas of the Borough, that there will be no overall adverse impact in the provision of green infrastructure in the area.*

**Local Policy NE3:** ‘The South Canvey Green Lung’ states:

1. *The Council will not support development within the Green Lung (identified on the Policies Map) which will adversely affect its openness, ecological and landscape value, and the ability of area to provide a strategically important ecological corridor.*

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2. *Proposals which support the creation of new habitats, having regard to the targets for the Nature Improvement Area, will be supported.*

**Local Policy NE4: 'Local Wildlife Sites'**

1. *The Council seeks the conservation and enhancement of Local Wildlife Sites (as identified on the Policies Map) and will support proposals which ensure the active conservation and enhancement of biodiversity interest at these sites.*
2. *The Council will encourage proposals for the active conservation and where appropriate biodiversity enhancement of potential Local Wildlife Sites in order to meet the selection criteria for designation as a Local Wildlife Site at a future date.*
3. *Development proposals which would result in harm to either a Local Wildlife Site or a potential Local Wildlife Site will not normally be permitted unless the need for the development outweighs the harm to biodiversity.*

**Strategic Policy NE5: 'Ecologically Sensitive and Designated Sites' states:**

1. *The Council will support proposals which can demonstrate a net gain in biodiversity. Proposals which have the potential adversely impact European, internationally, and locally designated sites including Ramsar sites, Special Protection Areas, Special Areas of Conservation, Sites of Special Scientific Interest, Ancient Woodlands, Local Nature Reserves and Special Roadside Verges, will not be supported unless an appropriate avoidance, on-site management and on-site mitigation strategy is submitted to and approved by the Council.*
2. *Proposals which may result in adverse impacts to biodiversity, protected species, priority species and/or priority habitats, will only be supported if they can meet the following requirements:*
  - a. *The application must demonstrate that impacts to biodiversity cannot be avoided through the location of development on an alternative site with less harmful impacts;*
  - b. *Where an alternative site is not available, the development proposal should seek to avoid adverse impact to biodiversity by virtue of the design and layout of the development. The Council must be satisfied that all reasonable opportunities to avoid impact to biodiversity have been taken;*
  - c. *Where it has not been possible to avoid all impacts to biodiversity, as required by a) and b), the development proposal should seek to apply management and mitigation techniques which retain and enhance biodiversity on site. The Council must be satisfied that all reasonable opportunities to secure on-site management and mitigation have been taken;*
  - d. *Where it is likely that impacts to a protected species, or Biodiversity Action Plan (BAP) species is not fully addressed through a), b) and c), species relocation within the site, or to a site nearby will be required to address the remaining impacts to that species. The Council must be satisfied that the relocation site will provide a long-term suitable habitat for the species in question. A management plan must be put in place to manage the relocation site as a suitable habitat for a period of at least 20 years; then*
  - e. *As a last resort, if the impacts to biodiversity in terms of both quantity and quality have not been fully addressed through a), b), c) and d), off-site compensation which would result in a net gain in biodiversity will be required. A compensation site must be identified which has the potential to be broadly equivalent to that habitat being lost, and a management plan*

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*prepared. Arrangements must be put in place to deliver that plan over a period of at least 20 years.*

3. *Proposals affecting ecologically sensitive sites and designated sites should be accompanied by an ecological assessment which should conform with guidance set out by the Chartered Institute of Ecology and Environmental Management (CIEEM) or an equivalent standard. Where insufficient information is provided, the Council will take a precautionary approach to the protection of ecological assets.*
4. *Contributions from relevant developments will be secured towards mitigation measures identified in the Essex Recreational disturbance Avoidance and Mitigation Strategy (RAMS).*

## Castle Point Borough Council Local Plan, 1998

The current Local Plan<sup>33</sup> was adopted in November 1998. It was saved in its totality until 28th September 2007 until the new local plan is adopted. The below saved policies are relevant to the Site, however it should be noted that Castle Point Borough Council have undertaken an NPPF conformity check of the saved policies and in some instances, they conclude they are not in conformity with the NPPF. The following policies are considered to potentially be of relevance to the OMSSD project:

**Policy EC12** (Sites of Special Scientific Interest) - Development which would adversely affect notified Sites of Special Scientific Interest (SSSI) or National Nature Reserves (NNR) will be refused. Within SSSI and NNR, the council will encourage proper maintenance and management in the interests of protecting and enhancing their nature conservation value. 3

**Policy EC13** (Protection of Wildlife and their Habitats), which states:

*“The council will refuse development which is prejudicial to the interests of all wildlife and the retention and management of important habitats.”*

*The supporting text to this policy further makes clear that, “Where a development scheme likely to have a significant adverse impact on wildlife interests is exceptionally permitted, the Council will require by condition that important habitats are protected on site” (paragraph 3.30)*

**Policy EC14** (Creation of New Wildlife Habitats), which states:

*“The council will encourage proposals for further nature reserves. It will also promote the creation of new wildlife habitats in conjunction with development proposals. In considering planning application, the council will take into account the potential for the creation of wildlife habitats, particularly where these would enhance and complement existing elements of nature conservation on adjoining land.”*

## Biodiversity Action Plans

### UK Post-2010 Biodiversity Framework

The Environment Departments of all four governments in the UK work together through the Four Countries Biodiversity Group. Together they have agreed, and Ministers have signed, a framework of priorities for UK-level work for the Convention on Biological Diversity. Published on 17 July 2012, the 'UK Post-2010 Biodiversity Framework'<sup>34</sup> covers the period from 2011 to 2020. This now

<sup>33</sup> Castle Point Borough Council (November 1998) 'Adopted Local Plan'.

<sup>34</sup> JNCC and DEFRA (on behalf of the Four Countries' Biodiversity Group). (2012). *UK Post-2010 Biodiversity Framework*.

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supersedes the UK Biodiversity Action Plan (UK BAP)<sup>35</sup>. However, many of the tools developed under UK BAP remain of use, for example, background information about the lists of priority habitats and species. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work in the countries.

Although the UK Post-2010 Biodiversity Framework does not confer any statutory legal protection, in practice many of the species listed already receive statutory legal protection under UK and / or European legislation. In addition, the majority of Priority national (English) BAP habitats and species are now those listed as Habitats of Principal Importance (HoPI) and Species of Principal Importance (SoPI) in England listed under Section 41 (S41) of the NERC Act 2006. For the purpose of this report, habitats and species listed under S41 of the NERC Act are referred to as having superseded the UK BAP. All public bodies have a legal obligation or ‘biodiversity duty’ under Section 40 of the NERC Act 2006 to conserve biodiversity by having particular regard to those species and habitats listed under S41.

## Local Biodiversity Action Plan

At a local level, the Site is covered by the Essex Biodiversity Action Plan (LBAP). This document identifies species of importance locally and contains local targets relevant for planning and mitigation within the county of Essex.

## Guidance

### National Planning Practice Guidance, 2019

The Government’s National Planning Practice Guidance<sup>36</sup> (NPPG) is intended to provide guidance to local planning authorities and developers on the implementation of the planning policies set out within the NPPF. The guidance of most relevance to ecology and biodiversity is the Natural Environment Chapter, which explains key issues in implementing policy to protect biodiversity, including local requirements.

### Biodiversity 2020: A strategy for England’s Wildlife and Ecosystem Services

In October 2010, over 190 countries signed an agreement which established a new global vision for biodiversity, including a set of strategic goals and targets to drive action. England’s response to this agreement was the publication of ‘*Biodiversity 2020: A strategy for England’s wildlife and ecosystem services*’<sup>37</sup>. The mission for this strategy is:

*“to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.”*

### BS 42020: 2013 Biodiversity: Code of Practice for Planning and Development

The UK commitment to halt overall loss of biodiversity by 2020 in line with the European Biodiversity Strategy and UN Aichi targets<sup>38</sup>, is passed down to local authorities to implement,

<sup>35</sup> HMSO. (1994) *Biodiversity The UK Action Plan*.

<sup>36</sup> Department for Communities and Local Government. (2016). *National Planning Practice Guidance*. DCLG, London.

<sup>37</sup> Defra. (2011) *Biodiversity 2020: A strategy for England’s wildlife and ecosystem services*.

<sup>38</sup> <https://www.cbd.int/sp/targets/>

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mainly through planning policy. To assist organizations affected by these commitments, BSI has published BS 42020 which offers a coherent methodology for biodiversity management.

This British Standard sets out to assist those concerned with ecological issues as they arise through the planning process in matters relating to permitted development and activities involved in the management of land outside the scope of land use planning, which could have site-specific ecological implications.

The standard has been produced with input from a number of organisations including the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Association of Local Government Ecologists (ALGE) and provides:

- Guidance on how to produce clear and concise ecological information to accompany planning applications;
- recommendations on professional ethics, conduct, competence and judgement to give confidence that proposals for biodiversity conservation, and consequent decisions/actions taken, are sound and appropriate; and
- direction on effective decision-making in biodiversity management a framework to demonstrate how biodiversity has been managed during the development process to minimise impact.

## Legislation

Specific habitats and species receive legal protection in England under various pieces of legislation, including:

- The Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019<sup>39</sup>;
- The Wildlife and Countryside Act (WCA) 1981 (as amended)<sup>40</sup>; and
- The Natural Environment and Rural Communities Act 2006<sup>41</sup>.

Further details of legislation in respect of legally protected and notable flora and fauna of relevance to the Site are provided below;

## Flora

Certain wild plants are protected under the WCA 1981 (as amended) and the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019. In summary, the legislation prohibits the collecting or cutting of certain wild plants, in addition to the picking, uprooting, destroying, selling or transporting of such wild plants.

The legislation also prohibits the uprooting of any wild plant, unless the uprooting is carried out by the owner or occupier of the land on which the plant is growing, or by someone having their permission to do so, or unless the action is authorized in writing by the appropriate local authority. It is a defense if the damage done to a protected plant is the result of an otherwise lawful action and could not reasonably have been avoided.

A number of non-native invasive species are also listed under the WCA 1981 (as amended). Under the Act it is an offence to plant or otherwise cause the species to grow in the wild. In addition, any soil or plant material containing these species is likely to be classed as controlled waste.

<sup>39</sup> HMSO (2017) The Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019

<sup>40</sup> HMSO (1981) 'Wildlife and Countryside Act 1981 (as amended)'

<sup>41</sup> ODPM (2006) 'Natural Environment and Rural Communities Act (2006)'

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## Amphibians

Common species of amphibian (smooth newt *Lissotriton vulgaris*, palmate newt *L. helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo*) are partially protected by the WCA 1981. This prohibits the trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy) of these species.

Great crested newts *Triturus cristatus* are protected under the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 and the WCA 1981 (as amended). In summary, taken together, it is an offence to deliberately, intentionally or recklessly:

Kill, injure or capture a great crested newt;

Disturb great crested newts in such a way as to be likely significant to affect:

- (i) the ability of any significant group of great crested newts to survive, breed, or rear / nurture their young; or
- (ii) the local distribution of great crested newts;

Damage or destroy any breeding or resting place used by great crested newts; or

Obstruct access to any place used by great crested newts for shelter or protection and disturbing great crested newts while occupying such as place.

## Bats

In summary, all UK bat species are protected by the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 and by the WCA 1981 (as amended). Taken together it is an offence to deliberately, intentionally or recklessly:

Kill, injure or capture a bat;

Disturb bats in such a way as to be likely significant to affect

- (i) the ability of any significant group of bats to survive, breed, or rear / nurture their young; or
- (ii) the local distribution of that species;

Damage or destroy any breeding or resting place used by bats; or

Obstruct access to any place used by bats for shelter or protection and disturbing bats while occupying such as place.

## Birds

The level of protection afforded to birds under the law varies from species to species. All of the native bird species of Britain are covered by the relevant aspects of the WCA 1981 (as amended) and the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019.

Statutory protection is given to all nesting birds in the UK under the WCA 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird, take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for species listed on Schedule 1 of the WCA 1981 (as amended), it is an offence to intentionally or recklessly disturb birds while they are nest building, or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

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In addition to statutory protection, the bird species of Britain are also subject to various conservation designations intended to indicate their rarity, population status and conservation priority. These do not have statutory force but may be instrumental in determining local, regional and national planning and development policy. The main categories of designation comprise the British Trust for Ornithology (BTO) 'Species Alert' lists, the Royal Society for the Protection of Birds (RSPB) 'Birds of Conservation Concern' lists and species listed under Section 41 of the NERC Act 2006 and local Biodiversity Action Plans (BAPs).

The BTO Conservation Alert System lists of 'Birds of Conservation Concern' include a 'Red List' for birds of high conservation concern and an 'Amber List' for birds of medium conservation concern. Red List species are those that are globally threatened, and Amber List species are those with an unfavourable conservation status in Europe, according to the International Union for Conservation of Nature (IUCN) criteria<sup>42</sup>.

## Invertebrates

The majority of invertebrate species are not legally protected. However, a total of seventy-two terrestrial and aquatic invertebrate species are protected under the WCA 1981 (as amended). Certain species of invertebrate are also protected under the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019.

## Reptiles

All native British reptiles are protected in accordance with the WCA 1981 (as amended). There are two levels of protection afforded to reptiles through the WCA 1981 (as amended); these result from different parts of the Act applying to the different species.

In summary, common species of reptile such as common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, grass snake *Natrix natrix* and adder *Vipera berus* are partially protected under the WCA 1981 (as amended); this prohibits the intentional killing and injuring and trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy). It is not an offence under the WCA 1981 (as amended) to disturb or possess these species.

<sup>42</sup> IUCN (2000): 'The revised Categories and Criteria (IUCN Red List Categories and Criteria version 3.1)'.

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## B. Building Descriptions and Bat Roosting Suitability

Building Number	Description	Photo	Bat Potential
B1	<p>Modern red brick building with hipped roof and clay tiles, uPVC windows, fascia, soffits and pipe work.</p> <p>Building is tight fitting with no suitable access points or roosting features for bats. No evidence of bats recorded.</p>		Negligible
B2	<p>Corrugated metal building with a flat asphalt roof partially colonised with pioneer vegetation.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible

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Building Number	Description	Photo	Bat Potential
B3	<p>Small red bricked building with a corrugated metal hipped roof, wooden soffits and fascias and plastic pipe work. Building is open fronted behind sheeting.</p> <p>Rated as low bat roosting suitability as part of 2018 'Extended' Phase 1 Habitat Survey</p>		<p>Downgraded to negligible bat roosting suitability following 2019 internal inspection and 2020 'Extended' Phase 1 Habitat Survey</p> <p>No suitable roosting features or evidence of bats recorded.</p>
B4	<p>Corrugated metal warehouse style building with hipped corrugated asbestos roof and plastic pipe work.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible

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Building Number	Description	Photo	Bat Potential
B5	<p>Corrugated metal storage shed with hipped corrugated metal roof.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible
B6	<p>Large corrugated metal shed, with a hipped roof, open on the northern side and partly open of western side.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible
B7	<p>A red brick substation with a flat asphalt roof and plastic soffits, fascia and pipe work.</p> <p>Rated as low bat roosting suitability as part of 2018 'Extended' Phase 1 Habitat Survey</p>		<p>Downgraded to negligible bat roosting suitability following 2019 internal inspection and 2020 'Extended' Phase 1 Habitat Survey.</p> <p>No suitable roosting features or evidence of bats recorded.</p>

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Building Number	Description	Photo	Bat Potential
B8	<p>A wooden clad building with a flat asphalt roof and plastic windows and pipe work. In relatively good condition.</p> <p>Building is tight fitting with no suitable roosting features or evidence of bats recorded.</p>		Negligible
B9	<p>Large corrugated metal shed, with a hipped corrugated metal roof</p> <p>Rated as low bat roosting suitability as part of 2018 'Extended' Phase 1 Habitat Survey</p>		<p>Downgraded to negligible bat roosting suitability following 2019 internal inspection and 2020 'Extended' Phase 1 Habitat Survey</p> <p>No suitable roosting features or evidence of bats recorded.</p>
B10	<p>Red and white brick building with a corrugated metal/asbestos hipped roof with concrete fascia boards. Pigeon droppings observed.</p> <p>No suitable roosting features or</p>		Negligible

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Building Number	Description	Photo	Bat Potential
B11	<p>evidence of bats recorded.</p> <p>Small brick substation with a concrete flat roof.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible
B12	<p>Small garage building constructed from breeze blocks with a corrugated metal shallow hipped roof and wooden fascia and soffits.</p> <p>Rated as low bat roosting suitability as part of 2018 'Extended' Phase 1 Habitat Survey</p>		<p>Downgraded to negligible bat roosting suitability following 2019 internal inspection and 2020 'Extended' Phase 1 Habitat Survey</p> <p>No suitable roosting features or evidence of bats recorded.</p>

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Building Number	Description	Photo	Bat Potential
B13	<p>Small brick shed with a flat concrete roof. Open access.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible
B14	<p>Red brick substation with wooden cladding and a flat asphalt roof with metal fascia.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible
B15	<p>Main security office comprising a portacabin type structure of metal construction.</p> <p>No suitable roosting features or evidence of bats recorded.</p>	No photo available	Negligible

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Building Number	Description	Photo	Bat Potential
B16	<p>Corrugated metal building with flat corrugated metal roof.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible
B17	<p>Plant Building of metal construction.</p> <p>No suitable roosting features or evidence of bats recorded.</p>		Negligible

**Appendices**



### C. Full Habitat Suitability Index Assessment Results

Waterbody Number	Geographic Location	Area (m <sup>2</sup> )	Permanence	Water quality	Shade	Waterfowl Presence	Fish Presence	Pond Density	Terrestrial Habitat	Macrophyte Cover	Score
P1	1	0.95	0.9	0.33	1	1	1	1	0.67	0.3	0.75 (Good)
P2	1	0.8	0.8	0.33	1	1	1	1	1	0.3	0.77 (Good)
P3	1	0.2	0.2	0.67	1	1	1	1	1	0.8	0.79 (Good)
D1	1	1	0.9	0.33	1	1	1	1	0.67	0.8	0.87 (Excellent)

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Waterbody Number	Geographic Location	Area (m <sup>2</sup> )	Permanence	Water quality	Shade	Waterfowl Presence	Fish Presence	Pond Density	Terrestrial Habitat	Macrophyte Cover	Score
D2	1	0.95	0.1	0.33	1	1	1	1	0.33	0.8	0.75 (Good)
D3	1	0.2	0.1	0.33	1	1	1	1	0.33	0.8	0.68 (Average)

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## D. Photographs

Plate 1 : Example of hardstanding



Plate 2 : Example of bare ground



Plate 3 : Example ephemeral / short perennial and ruderal habitat



Plate 4 : Area of managed common reed within center of Site



Plate 5 : Area of reed to south-west of Mitgation Area 1



Plate 6 : Semi-improved grassland and ruderal vegetation within Mitigation Area 2



## Appendices

Plate 7 : Scrub within Mitigation Area 2



Plate 8 : Example of managed semi-improved grassland



Plate 9 : Example of managed semi-improved grassland Plate 10 : Waterbody P1



Plate 11 : Waterbody P2



Plate 12: Waterbody P3



### Appendices

Plate 13 : Waterbody D1



Plate14: Waterbody D1



Plate 15: Waterbody D2



Plate 16: Waterbody D3



Plate 17: Mitigation Area 1 (right) and fencing



Plate 18: Mitigation Area 2 fencing and boulder slope



### Appendices

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# UK and Ireland Office Locations

